MITSUBISHI

Mitsubishi Programmable Controller

MELSEC Q series MELSEC L series

MELSEC-Q/L Ethernet Interface Module User's Manual

Web function

QSERIES

LSERIES

MODEL

-QJ71E71-100

-QJ71E71-B5

-QJ71E71-B2

-LJ71E71-100

• SAFETY PRECAUTIONS •

(Read these precautions before using this product.)

Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly.
The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the user's manual for the CPU module to use.
In this manual, the safety instructions are ranked as " ⚠ WARNING" and " ⚠ CAUTION".

⚠ WARNING	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under " ⚠ CAUTION" may lead to serious consequences.
Observe the precautions of both levels because they are important for personal and system safety.

Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

[Design Precautions]

⚠ WARNING

- For the operating status of each station after a communication failure, refer to relevant manuals for the network.
  Incorrect output or malfunction due to a communication failure may result in an accident.
- To prevent the malfunction of the programmable controller system due to harmful e-mails, take preventive measures (such as antivirus measures) so that the mail server for this module does not receive harmful e-mails.
- To maintain the safety of the programmable controller system against unauthorized access from external devices via the Internet, take appropriate measures.
- When connecting a peripheral with the CPU module or connecting a personal computer with an intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the sequence program to ensure that the entire system will always operate safely.
  For program modification and operating status change, read relevant manuals carefully and ensure the safety before operation.
  Especially, when a remote programmable controller is controlled by an external device, immediate action cannot be taken if a problem occurs in the programmable controller due to a communication failure.
  To prevent this, configure an interlock circuit in the sequence program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.

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[Design Precautions]

⚠ WARNING

- Do not write any data in the "system area" of the buffer memory in the intelligent function module.
  Also, do not use any "use prohibited" signal as an output signal from the CPU module to the intelligent function module.
  Doing so may cause malfunction of the programmable controller system.

⚠ CAUTION

- Do not install the control lines or communication cables together with the main circuit lines or power cables.
  Keep a distance of 100mm or more between them.
  Failure to do so may result in malfunction due to noise.
- When changing the operating status of the CPU module (such as remote RUN/STOP) from the external device, select "Always wait for OPEN (Communication possible at STOP time)" for the "Initial timing" setting in the network parameter. The communication line will be closed when "Do not wait for OPEN (Communications impossible at STOP time)" is selected and the remote STOP is executed from the external device. Consequently, the CPU module cannot reopen the communication line, and the external device cannot execute the remote RUN.

[Operating Precautions]

⚠ CAUTION

- When changing data and operating status, and modifying program of the running programmable controller from a personal computer connected to an intelligent function module, read relevant manuals carefully and ensure the safety before operation.
  Incorrect change or modification may cause system malfunction, damage to the machines, or accidents.

• CONDITIONS OF USE FOR THE PRODUCT •

(1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;
i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.
MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.
("Prohibited Application")
Prohibited Applications include, but not limited to, the use of the PRODUCT in;
- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

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REVISIONS

* The manual number is given on the bottom left of the back cover.

Print Date	* Manual Number	Revision
Jun., 2001	SH (NA)-080180-A	First Edition
Apr., 2003	SH (NA)-080180-B	Model Addition QJ71E71-B5, QJ71E71-B2 Correction About the Generic Terms and Abbreviations, Section 1.1, Section 2.1, 2.2, Section 4.1, Chapter 6 (1)
Aug., 2005	SH (NA)-080180-C	Correction Section 1.1, Section 4.1, 4.4.3, Chapter 6
Jun., 2007	SH (NA)-080180-D	Change of a term "PLC" was changed to "programmable controller". Correction About Manuals, About the Generic Terms and Abbreviations, Section 3.2 (1), Chapter 6 (3)
Oct., 2008	SH (NA)-080180-E	Correction SAFETY PRECAUTIONS, About Manuals, About the Generic Terms and Abbreviations, Section 4.4
Feb., 2013	SH (NA)-080180-F	Revision on the addition of the LJ71E71-100 Model Addition LJ71E71-100

Japanese Manual Version SH-080144-F

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INTRODUCTION

Thank you for purchasing the Mitsubishi MELSEC-Q or -L series programmable controllers.
This manual describes how to use the Web functions with the Ethernet interface module.
Before using this product, please read this manual and the relevant manuals carefully and develop familiarity with the functions and performance of the MELSEC-Q or -L series programmable controller to handle the product correctly.
When applying the program examples introduced in this manual to the actual system, ensure the applicability and confirm that it will not cause system control problems.

Please make sure that the end users read this manual.

REMARK

- Unless otherwise specified, this manual describes the program examples in which the I/O numbers of X/Y00 to X/Y1F are assigned for the Ethernet interface module.
- For I/O number assignment, refer to the user's manual (Function Explanation, Program Fundamentals) for the CPU module used.

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RELEVANT MANUALS

The manuals related to this product are listed below.
Order each manual as needed, referring to the following lists.

Manual name	Manual number (Model code)
Q Corresponding Ethernet Interface Module User's Manual (Basic) Specifications, procedures for data communication with external devices, line connection (open/close), fixed buffer communication, random access buffer communication, and troubleshooting of the Ethernet interface module (sold separately)	SH-080009 (13JL88)
MELSEC-L Ethernet Interface Module User's Manual (Basic) Specifications, procedures for data communication with external devices, line connection (open/close), fixed buffer communication, random access buffer communication, and troubleshooting of the Ethernet interface module (sold separately)	SH081105ENG (13JZ73)
MELSEC-Q/L Ethernet Interface Module User's Manual (Application) E-mail function, communication via MELSECNET/H or MELSECNET/10, communication using the data link instructions, and file transfer function (FTP server) of the Ethernet interface module (sold separately)	SH-080010 (13JL89)
MELSEC-Q/L MELSEC Communication Protocol Reference Manual Details of MELSEC communication protocol (MC protocol) that is used for data communication between a target device and a CPU module (sold separately)	SH-080008 (13JF89)

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● How to use this manual

Please refer to the applicable items of this manual by referring to the following outline of the contents of this manual:

(1) To find out how to use the Web function and to learn about the operating environment

- Chapter 1 describes an overview of the Web function.
- Chapter 2 describes a system configuration for utilizing the Web function.

(2) To find out about the procedure for using the Web function

- Section 3.1 describes the procedure up to communication using the Web function.
- Section 3.2 describes how to obtain and set up the communication library and sample screen.
- Section 4.2 describes the procedure for accessing the programmable controller using a sample screen.

(3) To check the operation of the Web function

Chapter 4 describes an example when accessing the programmable controller using a sample screen.

(4) To create data used to access the programmable controller by the user

- Section 4.5 describes an overview of ASP (Active Server Pages) files for accessing the programmable controller, as well as HTML (Hyper Text Markup Language) files to be displayed by the Web browser, both of which are to be created by the user.
- Chapter 5 describes an example of file creation for programmable controller access.
- Chapter 6 describes the communication library functions.

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TERMS

Unless otherwise specified, this manual uses the following generic terms and abbreviations to describe QJ71E71-100, QJ71E71-B5 and QJ71E71-B2, and LJ71-100 Ethernet Interface Modules.

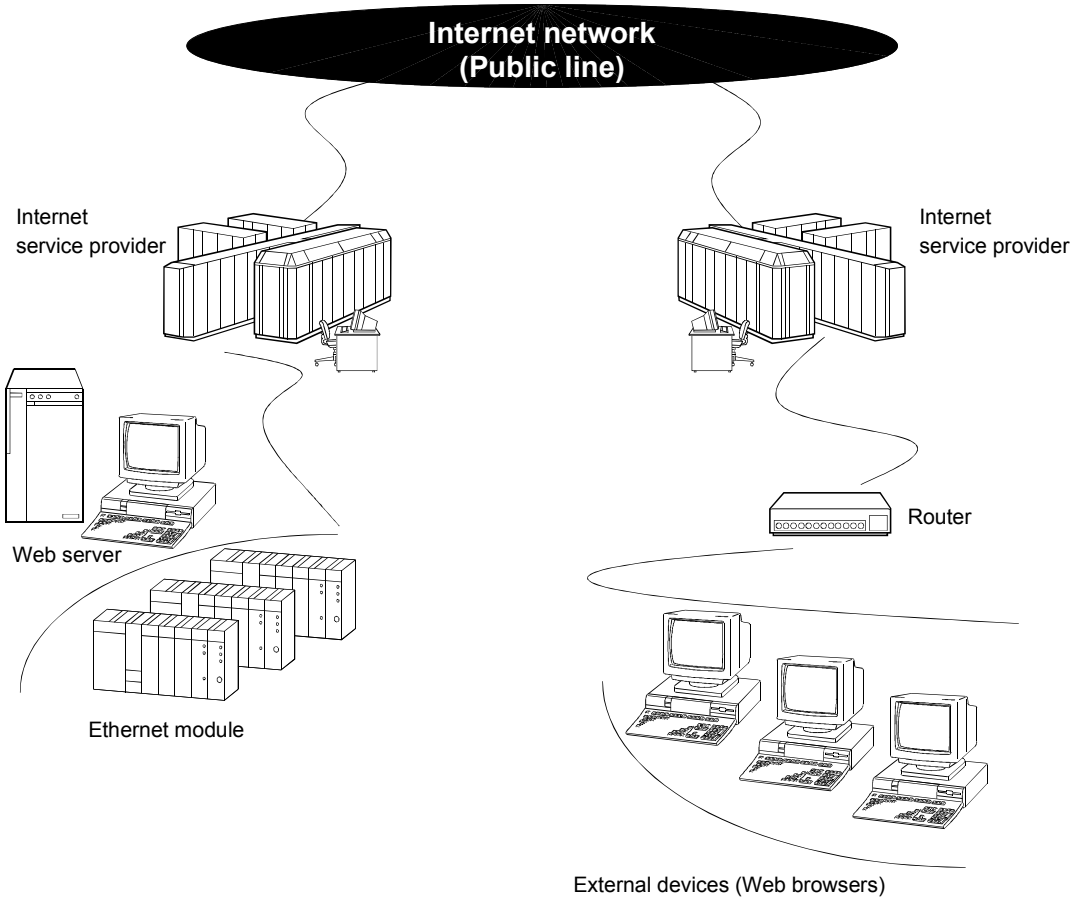
Term	Description
ASP	Abbreviation for Active Server Pages
CPU module	A generic term for QCPU and LCPU
Ethernet module	The abbreviation for Model QJ71E71-100, QJ71E71-B5 and QJ71E71-B2 Ethernet interface modules
External device	Generic term for personal computers, computers, workstations and Ethernet module etc. that are connected by the Ethernet for data communication
HTML	Abbreviation for Hyper Text Markup Language.
HTTP	Abbreviation for Hyper Text Transfer Protocol This protocol sends/receives the information on World Wide Web in the Internet.
LCPU	The abbreviation for the MELSEC-L series CPU module
MC protocol	Abbreviation for MELSEC communication Protocol This protocol is used to access MC protocol supporting modules, such as the serial communication module and Ethernet module, or programmable controllers connected to MC protocol supporting modules from external devices.
Programming tool	A generic term for GX Works2 and GX Developer
QCPU	A generic term for the Basic model QCPU, High Performance model QCPU, Process CPU, Redundant CPU, and Universal model QCPU
Reference Manual	The abbreviation for the MELSEC-Q/L MELSEC Communication Protocol Reference Manual
URL	Abbreviation for Uniform Resource Locator.
User's Manual (Application)	The abbreviation for the MELSEC-Q/L Ethernet Interface Module User's Manual (Application)
User's Manual (Basic)	The abbreviation for the Q Corresponding Ethernet Interface Module Use's Manual (Basic) and the MELSEC-L Ethernet Interface Module User's Manual (Basic)
User's Manual (Web function)	The abbreviation for the MELSEC-Q/L Ethernet Interface Module Use's Manual (Web function)
Web browsers	Abbreviation for software that views Web pages.
Web server	Abbreviation for the computer in which Web server software operates.
Web server software	Generic name of server software that supports the WWW (World Wide Web) services.

1 OVERVIEW

The following shows an overview of the Web function with the Ethernet module.

(1) Programmable controller monitoring via the Internet using the Web function

The Web function with the Ethernet module is used for the system administrator to monitor the MELSEC-Q/L series CPU modules at a remote location via the Internet, using a Web browser.



1 - 1

(2) Access function to the programmable controller

By using the Web function, the programmable controller data can be collected or updated, the CPU module operation can be monitored, and the status control of the CPU module can be performed in order to control and monitor the equipment on the programmable controller side using a Web browser (*1).

*1 With the Web function, exchange of information between the Ethernet module and the Web server, and between the Web server and the Web browser is performed via HTTP.
With the Web function, the programmable controller is accessed by sending/receiving messages of the MC protocol, which are used for communication between the programmable controller and the external device, via HTTP.

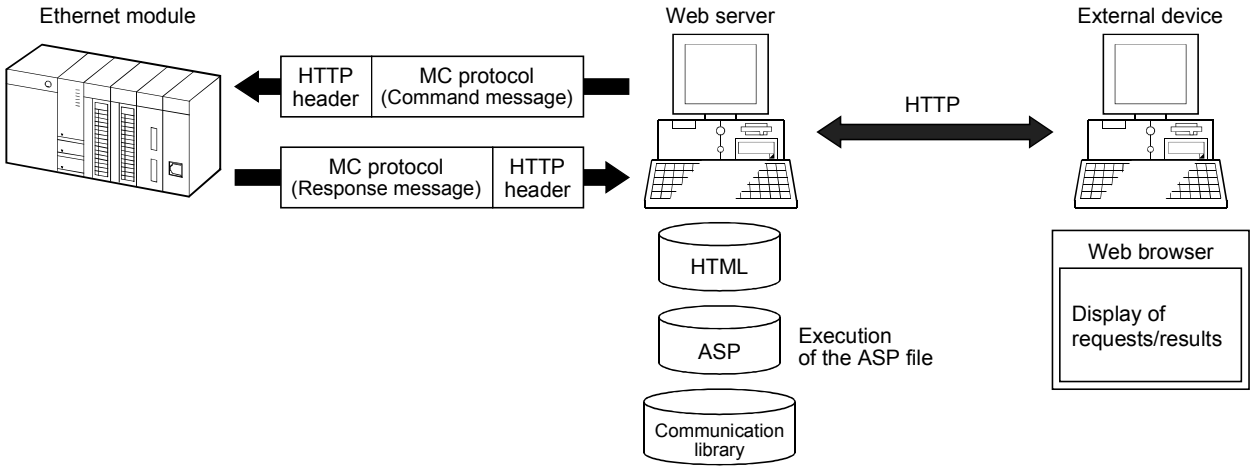
(3) Availability of a communication library and a sample screen

(a) The Web function can be used by installing the following:

	Required device/software	Description
Programmable controller side	Ethernet module	Subject module of this manual
Server computer (Web server)	Web server	Refer to Section 2.1 (4).
	Communication library	Refer to item (b).
	ASP files	Files created by the user to be used for accessing the programmable controller
	HTML files	Files created by the user to be used for displaying the Web browser
Device on the Web browser side	Web browser	Refer to Section 2.1 (4).

(b) A sample screen (HTML files, ASP files) is provided. It is used to check the access function to the programmable controller using the communication library and the Web function. Contact your local agency or marketing company.

1) The user can easily create ASP files in order to access the programmable controller by using the communication library.
In addition, the result of access to the programmable controller using ASP files can arbitrarily be displayed on the Web browser using user-created HTML files.

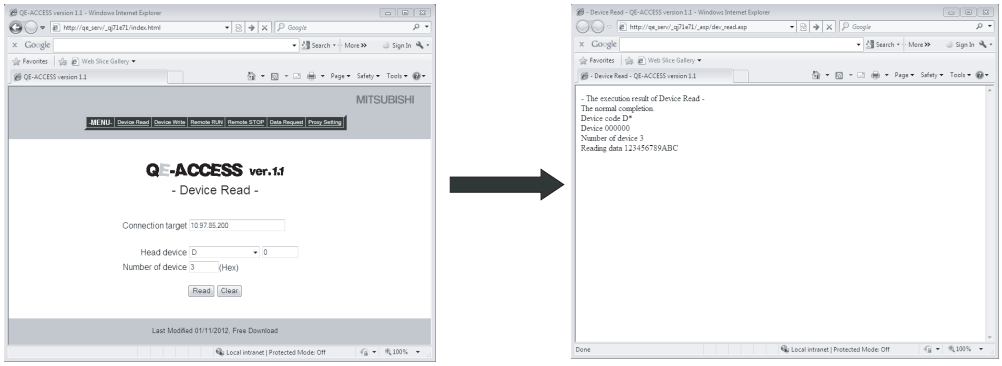


1 - 2

2) Device memory read/write, remote RUN/STOP and other operations can be performed for the Q/LCPU of an Ethernet module mounted station by specifying the URL of the sample screen using the Web browser.

* The execution result is displayed by simply entering the access device, the number of devices, etc. in the items to be displayed in the Web browser.

(Example) To read four points of data registers D0 = 1234H, D1 = 5678H, D2 = 9ABCH, and D3 = 1234H.



(Input screen) (Execution result screen)

(4) Utilizing the Web server

Access to the programmable controller using the Web function becomes possible by combining an Ethernet module and a Web server computer.

(a) A system can easily be configured by utilizing a Web server.

1) Complicated screens can be created.

The user can create multiple HTML files and HTML files of large sizes without being limited by the size of the Ethernet module memory by storing these HTML files in a Web server.

* The HTML files for Web browser can be created or changed easily if the user has knowledge of creating a web page.

2) Reducing the load on the Ethernet module

Since access programs for the programmable controller and control programs for Web browsers are executed in the Web server, the load on the Ethernet module can be minimized when accessing the programmable controller.

3) Separating an Ethernet line

By separating the line connecting between the Ethernet module and the Web server, and the line between the Web server and the Web browser, the screen data for the Web browser will not be sent to the line connecting between the Ethernet module and the Web server. Therefore, it is possible to reduce effect on the transmission/reception of data for system control for communication between the Ethernet module and the external device.

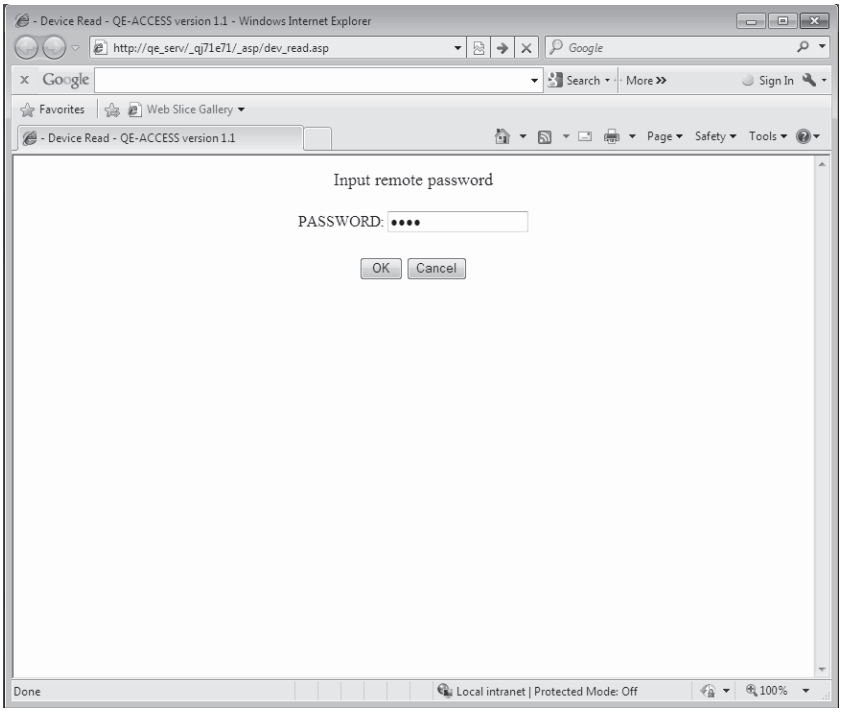
(b) System expansion can easily be achieved because the Web server and the Ethernet module are separated.
For example, the following function can be added:
If it is necessary to maintain the security of the programmable controller system against any unauthorized access (to damage programs or data, etc.) from external devices, the user can take a measure by adding a firewall function to the Web server.

(c) The communication information between the Ethernet module and the Web server, and between the Web server and the Web browser can be recorded and used for maintenance using the functions of the Web server.

(5) Remote password check function

(a) The remote password check function of the Ethernet module is provided to prevent any unauthorized access to the Q/LCPU by the user at a remote location.
For details on the remote password check function, refer to the user's manual (Basic).

(b) If the HTTP port is set as the target connection for remote password check, access to the Q/LCPU will become possible by performing unlock processing of the remote password via the dialog box displayed in the Web browser.



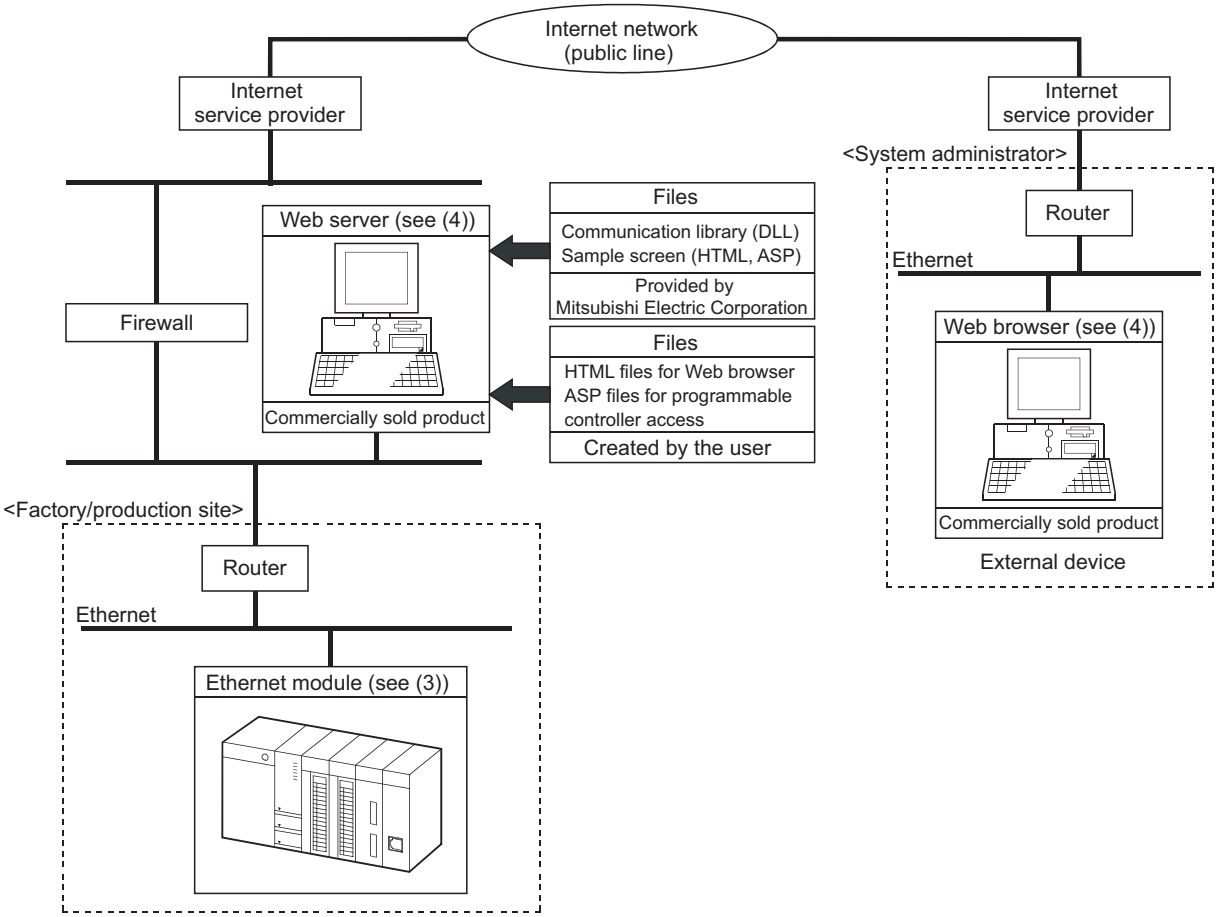
The remote password lock processing is performed when the Web browser ends.

2 SYSTEM CONFIGURATIONS

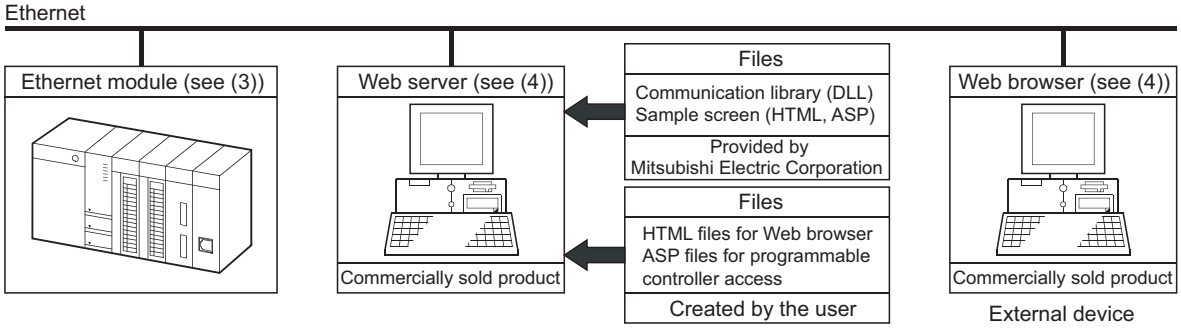
2.1 System Configurations

This section explains the environment and system configurations for using the Web function.
The following describes the system configurations for using the Web function of the Ethernet module.

(1) System configuration when accessing via the Internet



(2) System configuration when accessing via the Intranet



(3) Ethernet module

The Ethernet module that can use the Web function is as follows:

- Model QJ71E71-100 Ethernet interface module
- Model QJ71E71-B5 Ethernet interface module
- Model QJ71E71-B2 Ethernet interface module
- Model LJ71E71-100 Ethernet interface module

For the applicable systems and the devices required for network configuration of the above Ethernet module, refer to the user's manual (Basic).

(4) Web server and Web browser

The operating environment of the Web server is listed below.

Item	Operating environment
Web Server	Internet Information Services 5.1 by Microsoft® Corporation Internet Information Services 7.5 by Microsoft® Corporation Internet Information Services 8.0 by Microsoft® Corporation
Web browser	Internet Explorer 8.0 or later version by Microsoft® Corporation

(a) The following files need to set up in the Web server to use the Web function.

- Communication library
- HTML files for Web browser
- ASP files for programmable controller access

2.2 Precautions for Using the Web Function

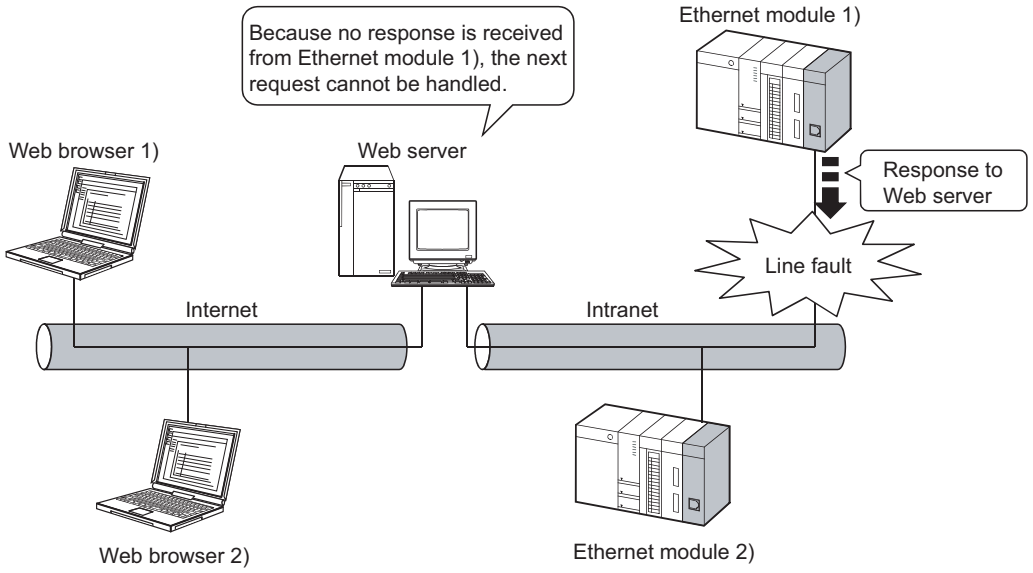
(1) Precautions for configuring a system

(a) It is necessary to take sufficient security measures for connection to the Internet.
Consult with a network installer, an Internet service provider, and a network administrator (person in charge of network planning and IP address management).
Mitsubishi Electric Corporation will not take any responsibility for any system problems that may occur while connecting to the Internet.

(b) If a firewall function is installed in the network, set it so that the HTTP protocol can pass the firewall function.

(c) When accessing multiple Ethernet modules via one Web server, the next process may not be executed during the time from the request start through until the response is returned.
If no response is received due to a communication line fault, the next processing may be delayed until a timeout occurs on the Web server.

(Example) Accessing 2 Ethernet modules using one Web server



- Access from Web browser 1) to Ethernet module 1)
- Access from Web browser 2) to Ethernet module 2)

The line fault between the Web server and Ethernet module 1) disables the response from Ethernet module 1) to the Web server. This brings the Web server into the wait status and the access request from Web browser 2) to Ethernet module 2) has to wait at the Web server.

(2) Precautions relating to security

The remote password check function is not designed to completely prevent unauthorized access. When accessing a CPU module via the Internet, and if it is necessary to maintain the security of the programmable controller system, the user should take appropriate measures.
Mitsubishi Electric Corporation will not take any responsibility for any system problems that may occur due to unauthorized access.

* Examples of measures against unauthorized access
  - Installing a firewall function
  - Security measures by the Web server

  Take necessary measures by referring to the User's Manual of the device used.

(3) Precautions for accessing the CPU module

(a) When the user creates an ASP or HTML file for the Web function, use the communication library (QeAccess.dll) provided by Mitsubishi Electric Corporation.
The communication library cannot be created by the user.
For details on the communication library functions, refer to Chapter 6.

(b) The Web server provides a log function that records file access, etc.
Periodically collect the access log for the programmable controller access file, and check the access status.
If there are too many unauthorized access logs to the Web server, the user should take appropriate measures to resolve unauthorized access.

(c) A maximum of four connections are allowed as the simultaneous access count when accessing the Ethernet module using the Web function.
If this maximum allowable access number is exceeded, a timeout error will be returned from a communication library function.
In case a timeout error occurs, extend the access interval time and retry.

3 OPERATING PROCEDURE

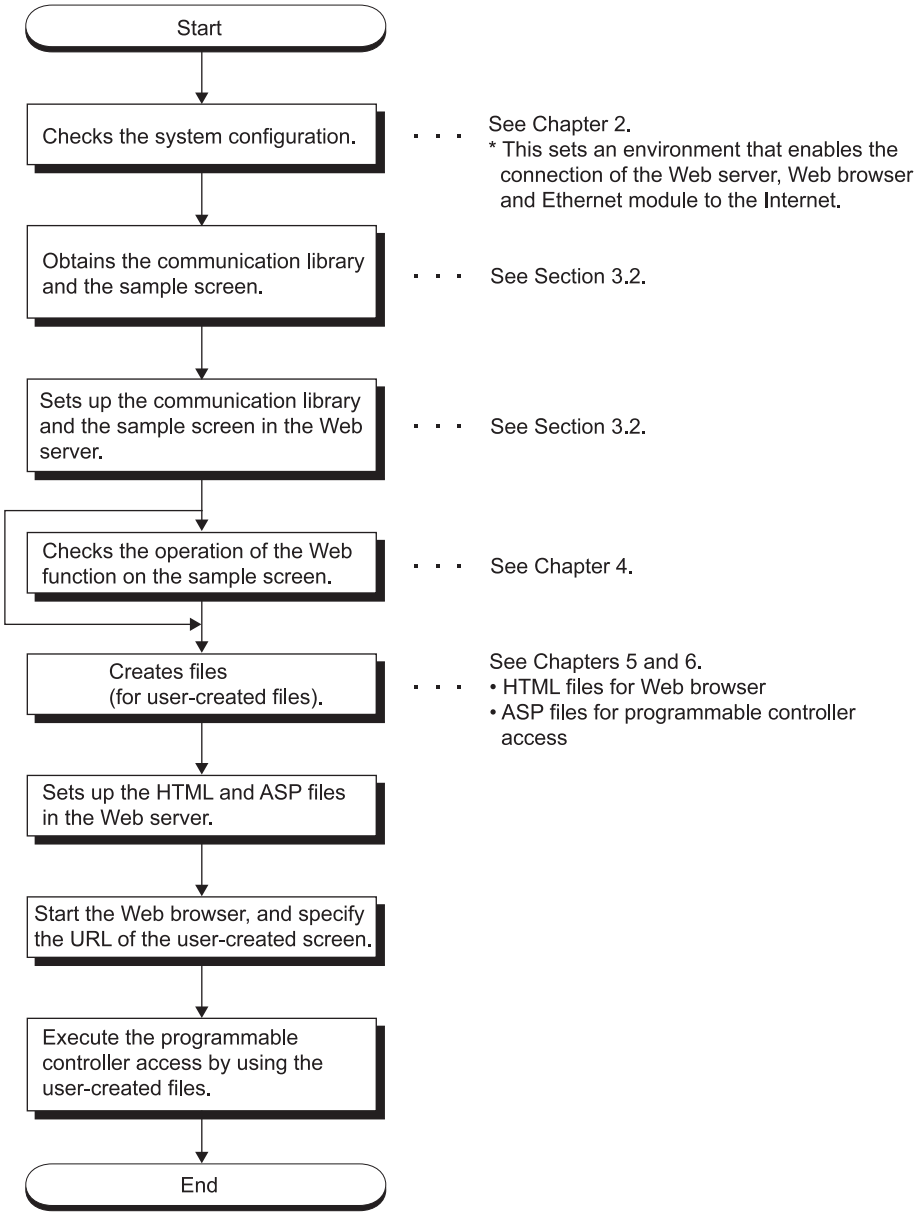
3.1 General Procedure up to Communication Using the Web Function

The following shows a general procedure up to access to the programmable controller from the Web server using the Web function.

(1) Settings on the Ethernet module side

Start the Ethernet module mounted station.
(When it is operating normally, the [INIT.] LED on the front of the Ethernet module lights up.)
For details, refer to the User's Manual (Basic).

(2) Settings on the external device side (Web server, Web browser)



3.2 How to Obtain and Set Up the Communication Library and the Sample Screen

The following explains how to obtain the communication library and the sample screen, and their setup procedures in the Web server.

(1) How to obtain the communication library and the sample screen

For sample files, please consult your local Mitsubishi representative.

Note that the applicable files depend on the operation system used as shown below.

OS	Sample file for the Web function
32-bit version	qeaccess-e-32.zip
64-bit version	qeaccess-e-64.zip

(2) Setup

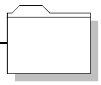
Set up the qeacess.exe file in the Web server.

POINT
Web server software must be installed in the Web server in advance. For the operating environment, refer to Section 2.1.

(Procedure 1) Decompressing the downloaded file

Move the compressed qeaccess-e.exe file to any folder and decompress it. The following shows the file structure after decompression.

The decompressed folder (_qj71e71) can be opened in the both Q and L series.

Folder name	File name	Remark
_qj71e71	dev_read.html dev_write.html foot.html index.html menu.html proxy_set.html req_cmd.html rmt_run.html rmt_stop.html	For sample screen • HTML files
 _asp	dev_read.asp dev_write.asp proxy_set.asp req_cmd.asp rmt_run.asp rmt_stop.asp	For sample screen • ASP files
_dll	QeAccess.dll	Communication library • DLL file
_img	mitsubishi.gif qeaccess_logo.gif	For sample screen • Image files

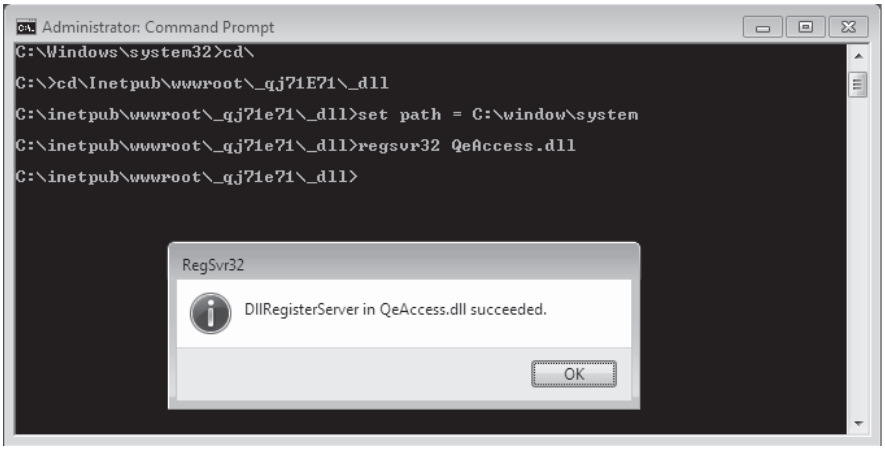
(Procedure 2) Copying the files

Copy the decompressed folder (_qj71e71) under the root folder "\Inetpub\wwwroot" of the Web server.

(Procedure 3) Registering the communication library (DLL file)
Register the DLL file in the OS registry of the Web server. The following shows how to register the file using a command prompt.

1) Open a command prompt of the Web server.
2) Switch the current directory.
C:\> cd\Inetpub\wwwroot_qj71e71_dll
3) Input the directory path of the regsvr32 command for Windows.
set path = C:\windows\system32
4) Register the communication library DLL with the regsvr32 command for Windows.
C:\> \Inetpub\wwwroot_qj71e71_dll> regsvr32 qeaccess.dll

(Example) When the root directory is in drive C



(Procedure 4) When all settings are complete, restart the Web server.

REMARKS

When deleting the files that have been set up, delete all files below the _qj71e71 folder of the root folder “\Inetpub\wwwroot.”

4 VERIFYING THE OPERATION OF THE WEB FUNCTION USING A SAMPLE SCREEN

This chapter explains how to access a CPU module using the Web function through a sample screen.

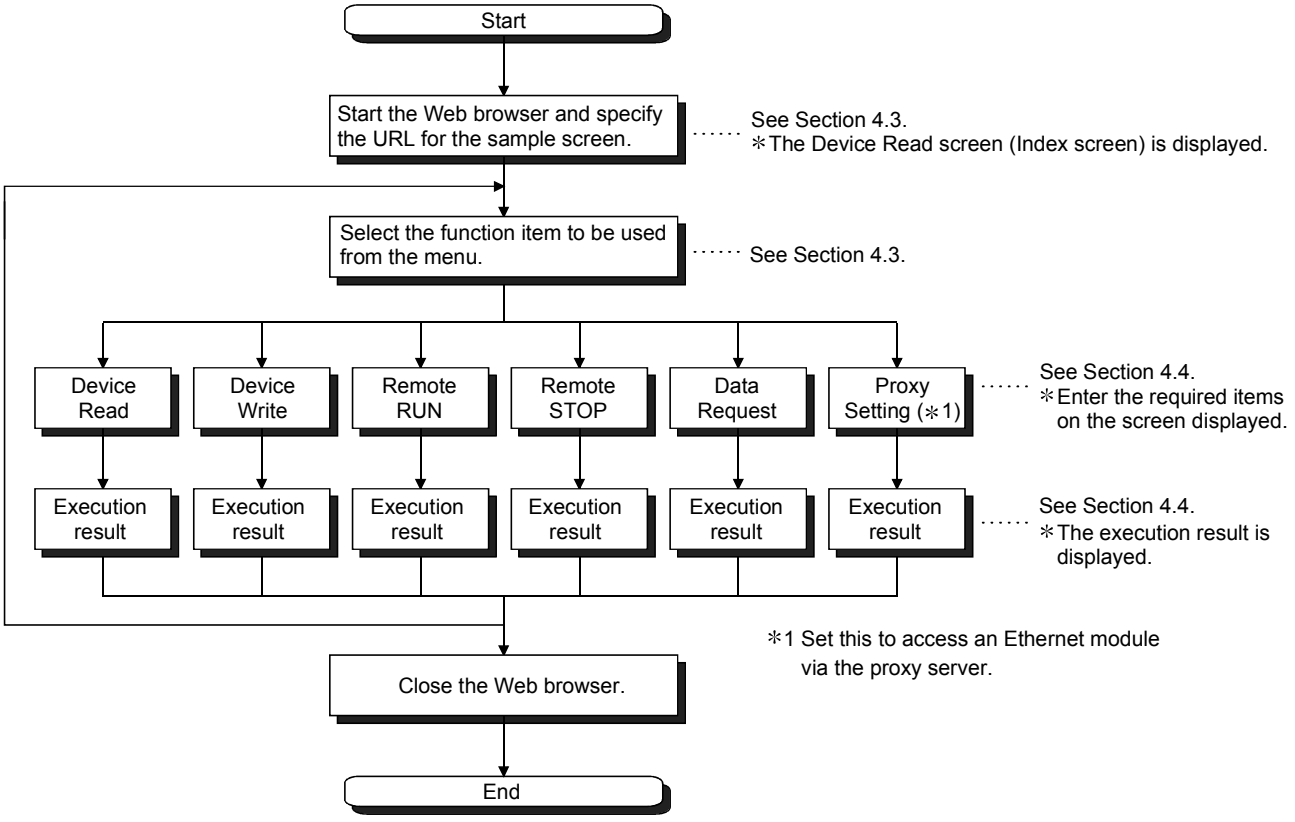
4.1 Web Function Items Available on the Sample Screen

The following lists the items of the Web function whose operations can be verified on the sample screen.

Function	File name	Description
Device Read	dev_read.html	Reads from a bit devices (such as X, Y, or M) in 16-point units.
		Reads from a word devices (such as D, R, T, or C) in one-point units.
Device Write	dev_write.html	Writes to a bit devices (such as X, Y, or M) in 16-point units.
		Writes to a word devices (such as D, R, T, or C) in one-point units.
Remote RUN	rmt_run.html	Requests a remote RUN operation to the CPU module.
Remote STOP	rmt_stop.html	Requests a remote STOP operation to the CPU module.
Data Request	req_cmd.html	Sends one MC protocol application data (subheader + text) that was input.
Proxy Setting	proxy_set.html	Specifies the proxy server when an Ethernet module is connected via a proxy server.

4.2 Operating Procedure

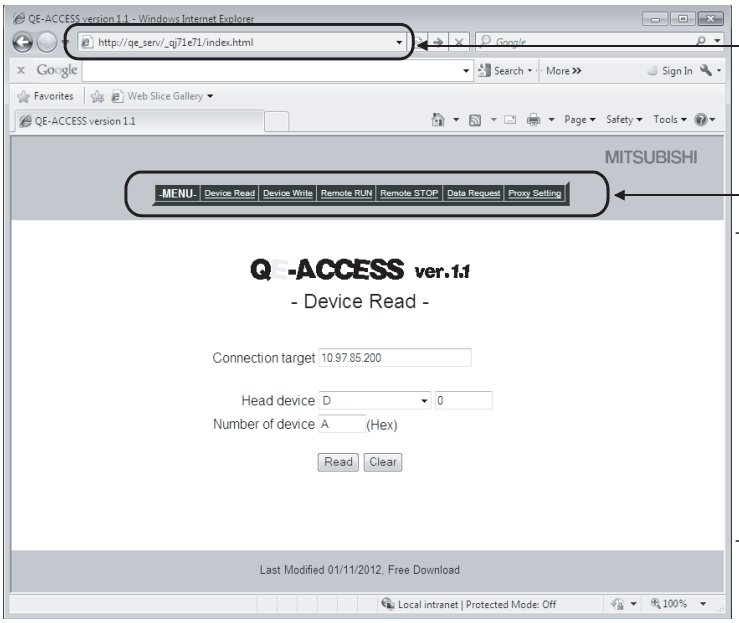
The following shows the operating procedure for accessing a CPU module from a sample screen.
Set up both the sample screen and the communication library in the Web server in advance. (Refer to Chapter 3.)



4.3 Explanation of the Sample Screen

The following shows the operations that are performed on the sample screen.

(1) Setting screen

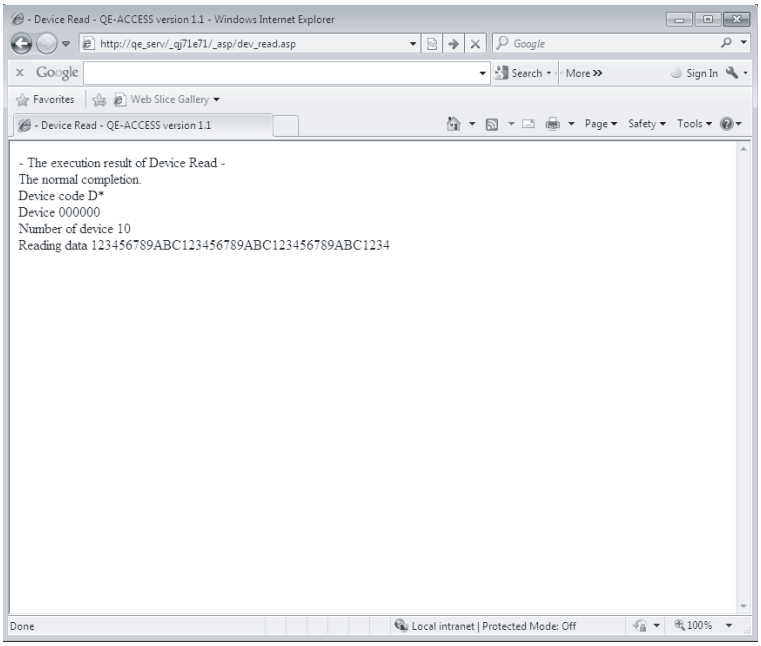


1) Start the Web browser and specify the URL for the sample screen.
(Example) If the host name of the Web server is qe_serv, specify http://qe_serv/_qj71e71/index.html.

2) Select the Web function item to be used from the menu.

3) Enter the required items on each function screen and execute the selected Web function item.
(Example) The screen display when Device Read has been selected.

(2) Execution result screen



1) The execution result is displayed on a new screen.
(When completed normally)
The execution result is displayed.

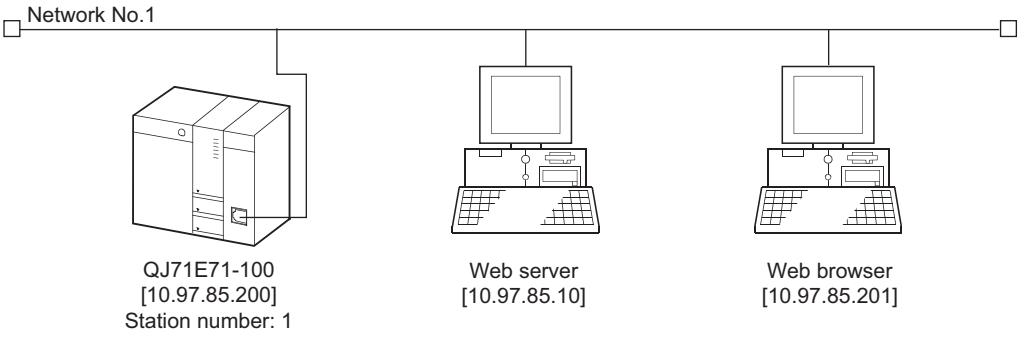
(When completed abnormally)
An error code is displayed.
∗ Refer to the explanation of troubleshooting in the User's Manual (Basic).

4.4 Example of Data Communication on the Sample Screen

The following shows how to access a CPU module using the sample screen.

(1) System configuration

The following shows a system configuration for data communication.
(Explanation of proxy setting is omitted.)



(2) Execution environment for the above data communication example (Ethernet module side)

(a) Mount an Ethernet module to slot 0 of the basic base unit.

(b) Set the parameters for Ethernet using a programming tool.
For the setting items other than shown below, use the default values.

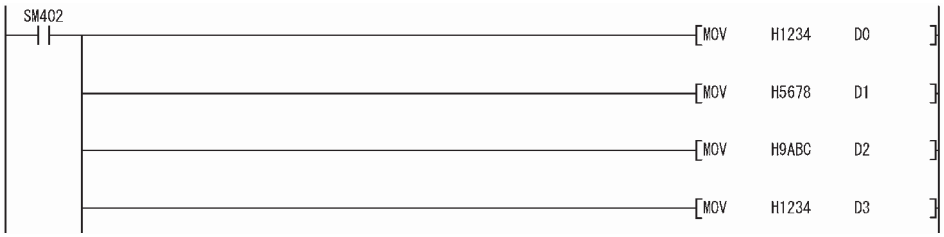
1) Network parameters

Setting screen	Setting item	Setting data
Network parameters setting the number of Ethernet/CC IE/MELSECNET cards	Network type	Ethernet
	Starting I/O No.	0000
	Network No.	1
	Group No.	1
	Station No.	1
Operational settings	IP address	[10. 97. 85. 200]

2) Remote password

Setting screen	Setting item		Setting data
Remote password settings	Password setting		＊＊＊＊
	Password active module settings	Model name	QJ71E71
		Start X/Y	0000
Remote password detail settings	System connection		Check “HTTP port.”

(c) Write data to the data registers D0 through D3.



(d) Write the Ethernet parameters and programs to the CPU module, and restart the CPU module.
When it is operating normally, the initial processing of the Ethernet module will be completed normally and the [INIT.] LED will be lit.

(3) Execution environment of the above data communication example (external device side)

(a) Web server

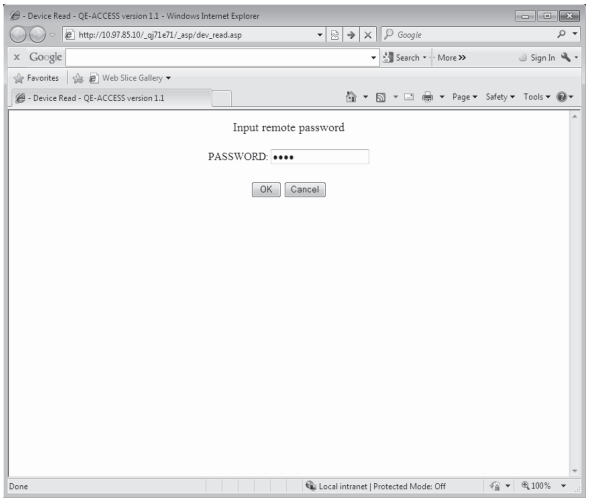
1) Set up the communication library and the sample screen. (Refer to Section 3.2 (2).)
2) Register the DLL file in the OS registry. (Refer to Section 3.2 (2).)
This registration is not required if it has already been registered.
3) After all settings are completed, restart the Web server.

(b) Web browser
Start the Web browser.

(4) Execution of data communication

(a) URL display on the sample screen
Specify the following URL for the sample screen in the Web browser.
http://10.97.85.10/_qj71e71/index.html

(b) Unlocking the remote password
If the port of the Ethernet module using for data communication with the Web server is subject to remote password check, the following dialog box will be displayed when access to a CPU module will start.
Enter the remote password to perform unlock processing.
* This operation is not required if the port of the Ethernet module is not subject to remote password check. (Therefore, the following dialog box will not be displayed.)



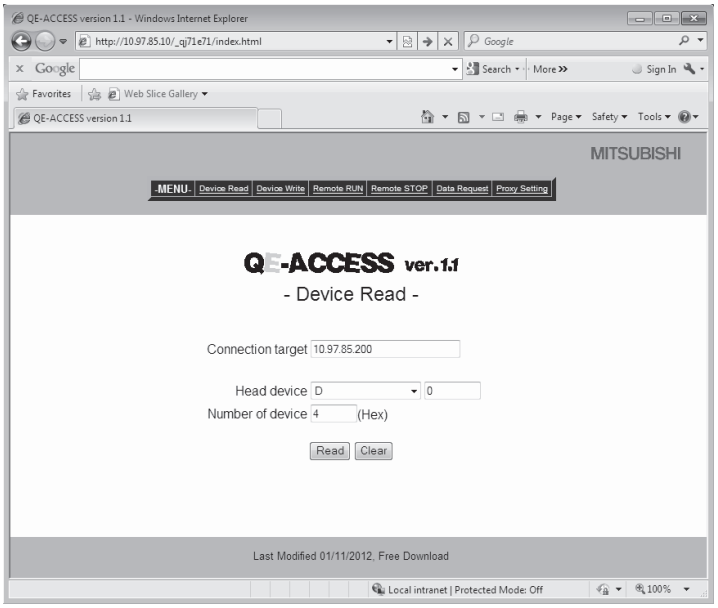
(c) Data communication
For an example of data communication, refer to Section 4.4.1 and subsequent sections.

(d) End of data communication
Close the Web browser.

4.4.1 Device Read/Write

The Device Read and Device Write functions (QnA compatible 3E frame commands 0401 and 1401) read and write the bit device memory (16-bit units) and word device memory (1-word units) of the local station's CPU module in batch mode.
For details on the MC protocol, refer to the Reference Manual.
This section explains an example of reading four points of the data registers D0 through D3.

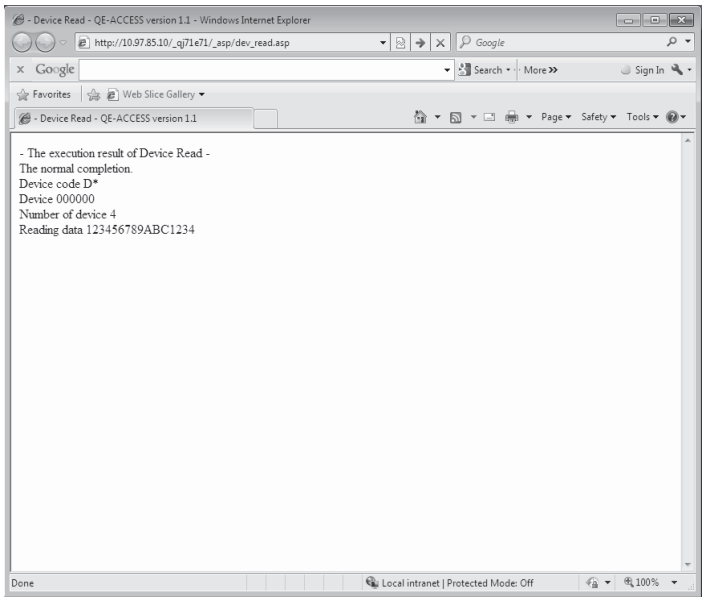
(1) Device Read Screen



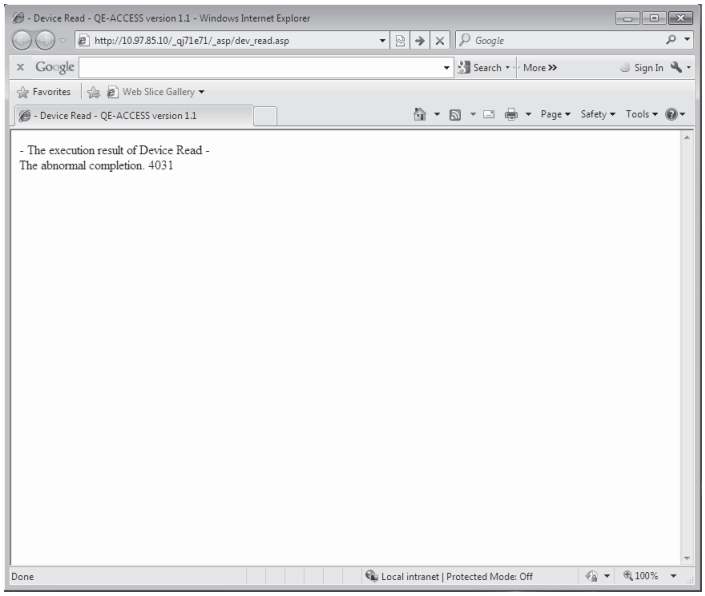
Setting item	Setting value
Connection target	10. 97. 85. 200
Start device	D0
Number of device	4

(2) Execution result

(a) Normal completion



(b) Abnormal completion



(3) Setting items

The following explains the setting items on the Device Read/Write screen.

(a) Connection target (character string)

Specify the IP address or host name of the connection target Ethernet module.

(Example) To specify using the IP address, enter 10. 97. 85. 200.

(b) Start device

Specify the device code and start device of the device for reading/writing data.

1) Device code (selection)

Select the device memory.

2) Start device (character string)

Specify the start number of the device memory for which data is to be read/written. Specify the start device number in decimal/hexadecimal from the target device memory.

(Example) To specify the data register D100, select the device code "D" and specify "100" for the start device.

(Example) To specify the link register W1FF, select the device code "W" and specify "1FF" for the start device.

(c) Number of device (character string)

Specify the number of points (hexadecimal) of the device for which reading/writing are to be performed.

(Example) To specify 20 points as the number of device points, specify "14".

(d) Read data/write data (character string) (Refer to item (4).)

1) Read data (execution result screen)

Displays the content of data for the number of device points read from the specified device memory.

2) Write data

Specify the data to be written to the device for the number of device points.

(4) Arrangement of read/write data

The following explains the transmission method and placement of the bit device data and word device data handled by device read/write operation.
The data is handled in word units during device read/write operation on the sample screen.

(a) When reading/writing the bit device memory

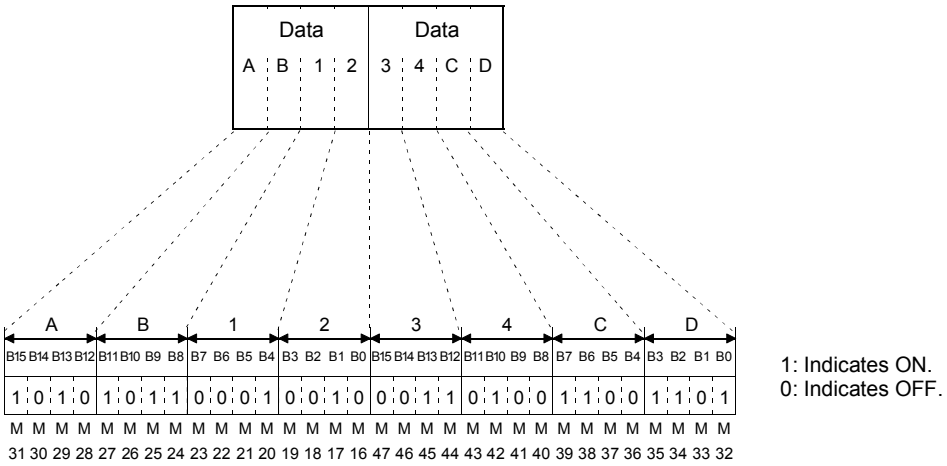
In the bit device memory, one word is expressed in 4-bit units sequentially from upper bits in hexadecimal.

(Example) To write data to 32 points from the internal relay M16
(In the case of data read operation, the content of data (ON/OFF status) when 32 points are specified from the internal relay M16 is shown.)

Specify each setting item as follows:

- Device code : Select "M".
- Start device : Specify "16".
- Number of device : Specify "2".
- Write data : Specify "AB1234CD".

The following data will be written. (In the case of device read operation, the following data will be read.)



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(b) When reading/writing the word device memory

In the word device memory, one word is expressed in 4-bit units sequentially from upper bits in hexadecimal.

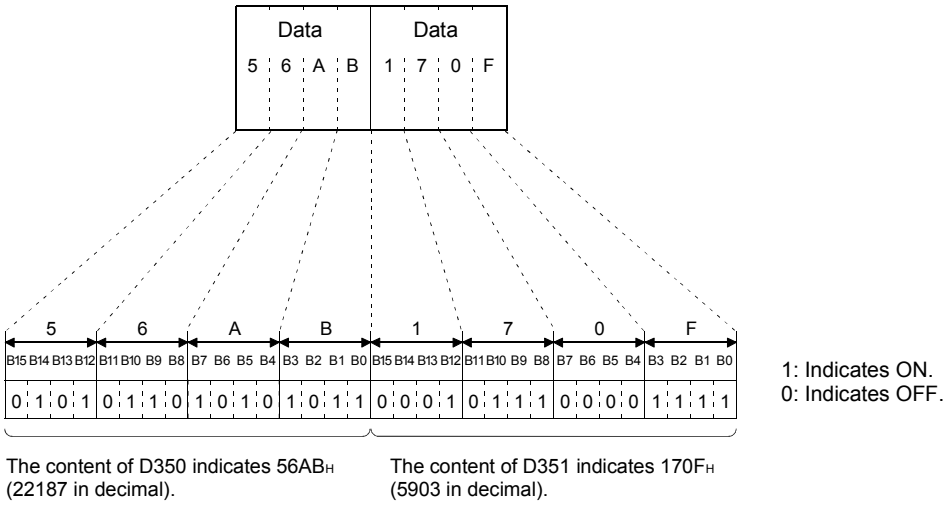
(Example) To write data to the data registers D350 and D351

(In the case of data read operation, the content of data when the data registers D350 and D351 are specified is shown.)

Specify each setting item as follows:

- Device code : Select "D".
- Start device : Specify "350".
- Number of device : Specify "2".
- Write data : Specify "56AB170F".

The following data will be written. (In the case of device read operation, the following data will be read.)



POINT

If values (real numbers, character strings) other than integers are stored in the word device memory from which data is to be read, the Ethernet module reads the stored values as integer values.

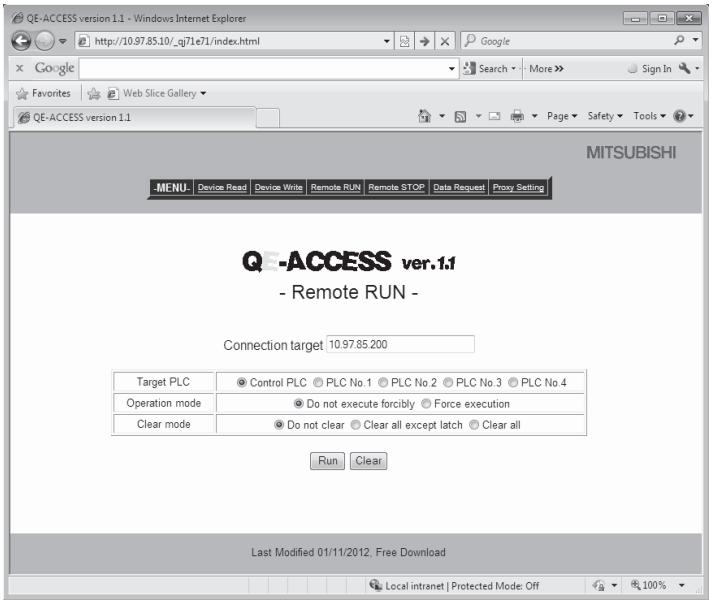
(Example 1) If a real number (0.75) is stored in D0 and D1, it will be read as the following integer value:
"00003F40" (D0 = 0000H, D1 = 3F40H)

(Example 2) If a character string ("12AB") is stored in D2 and D3, it will be read as the following integer value:
"32314241" (D2 = 3231H, D3 = 4241H)

4.4.2 Remote RUN/STOP

The Remote RUN and Remote STOP functions (QnA compatible 3E frame commands 1001 and 1002) stop and run the local station's CPU module.
For details on the MC protocol, refer to the Reference Manual.
This section explains an example of Remote RUN.

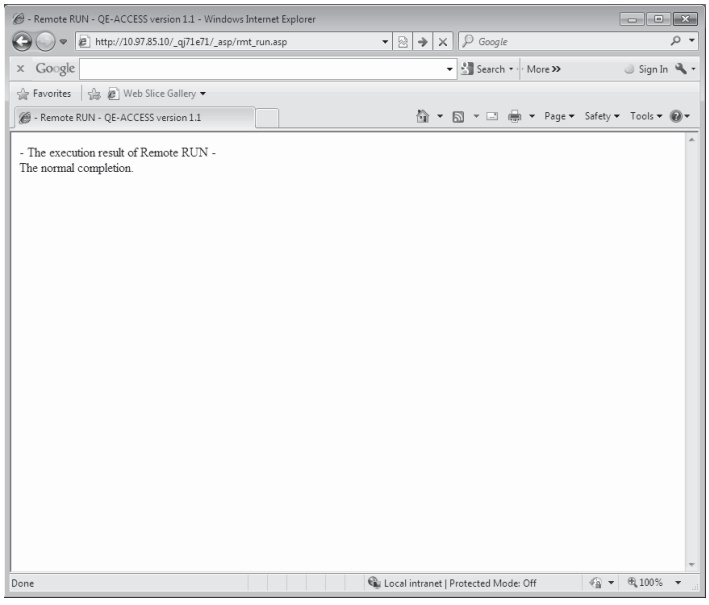
(1) Remote RUN screen



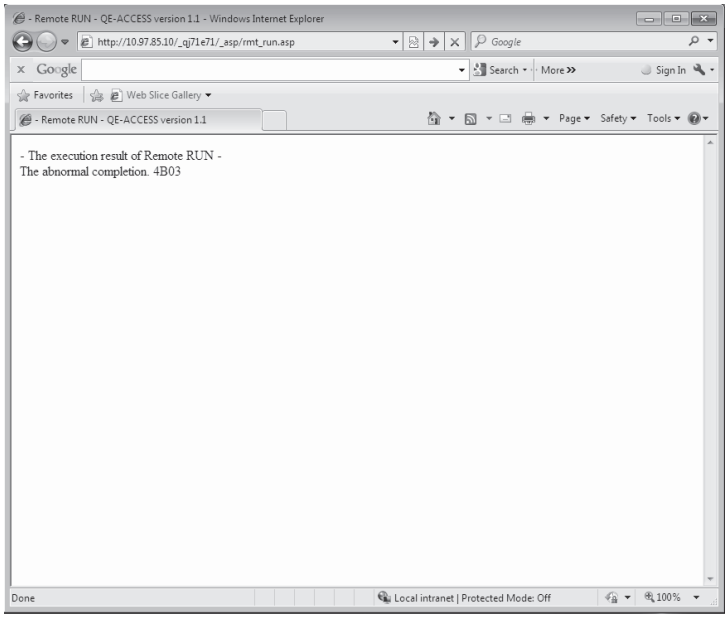
Setting item	Setting value
Connection target	10. 97. 85. 200
Operation mode	Do not execute forcibly
Clear mode	Do not clear.

(2) Execution result

(a) Normal completion



(b) Abnormal completion



(3) Setting items

The following explains the setting items on the Remote RUN/STOP screen.

(a) Connection target (character string)

Specify the IP address or host name of the connection target Ethernet module.

(Example) To specify using the IP address, enter 10. 97. 85. 200.

(b) Target PLC (selection)

Select the target programmable controller for remote RUN/STOP operation.

∗ To perform remote RUN/STOP to a single CPU system of the QCPU or the LCPU, specify the control CPU.

(c) Operation mode (selection)

Select whether or not to execute remote RUN forcibly.

1) Do not execute forcibly

Does not perform remote RUN when remote STOP is being executed from other external device.

2) Force execution

Performs remote RUN even if remote STOP is being executed from other external device.

(d) Clear mode (selection)

Specify clear (initialization) processing of the CPU module's device clear when starting the CPU module calculation by remote RUN.

1) Do not clear

Does not clear the device memory.

2) Clear all except latch

Clears the device memory outside the latch range.

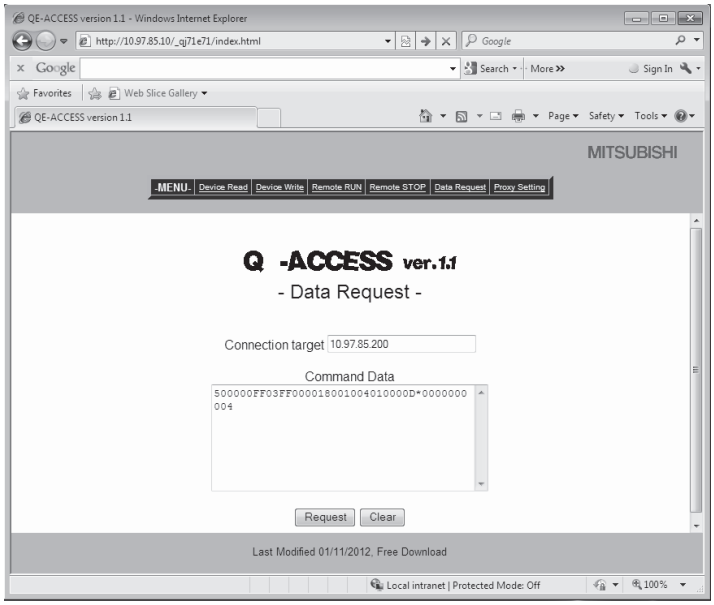
3) Clear all

Clears all device memory including the latch range.

4.4.3 Data Request

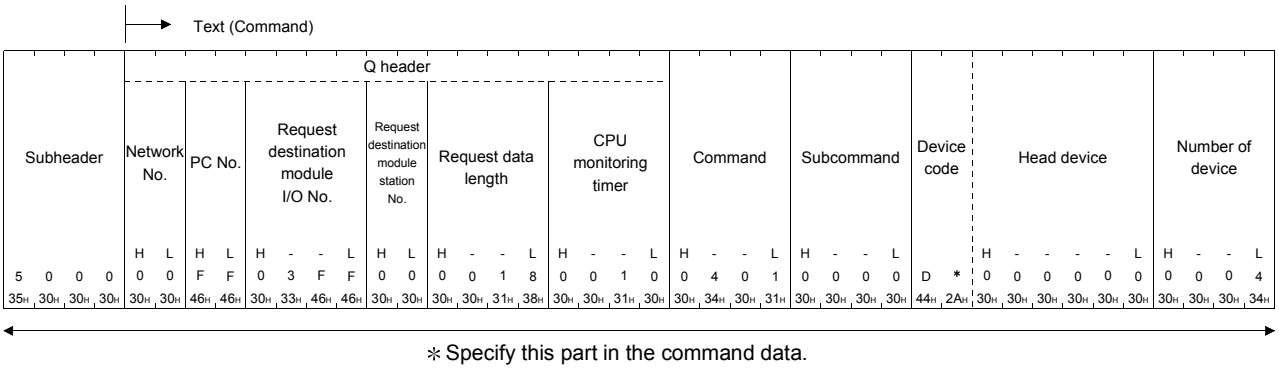
The Data Request function accesses the CPU module by inputting the application data of the MC protocol (QnA compatible 3E frame).
This section explains how to read four points of the data registers D0 through D3 by specifying the application data of Device Memory Batch Read (command 0401) for the QnA compatible 3E frame.

(1) Data Request screen



Setting item	Setting value
Connection target	10. 97. 85. 200
Command Data	500000FF03FF000018001004010000D＊0000000004

(Example) The following shows an example of the format for the application data of the MC protocol that is equivalent to the command data.



＊Specify this part in the command data.

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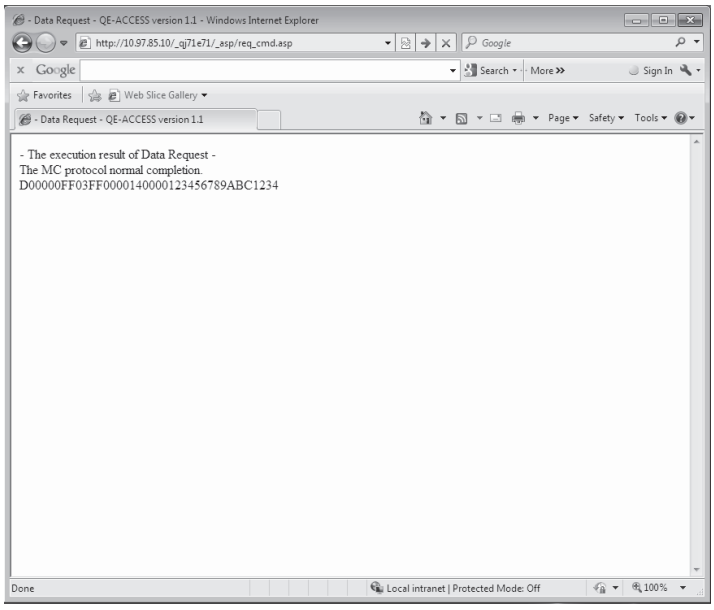
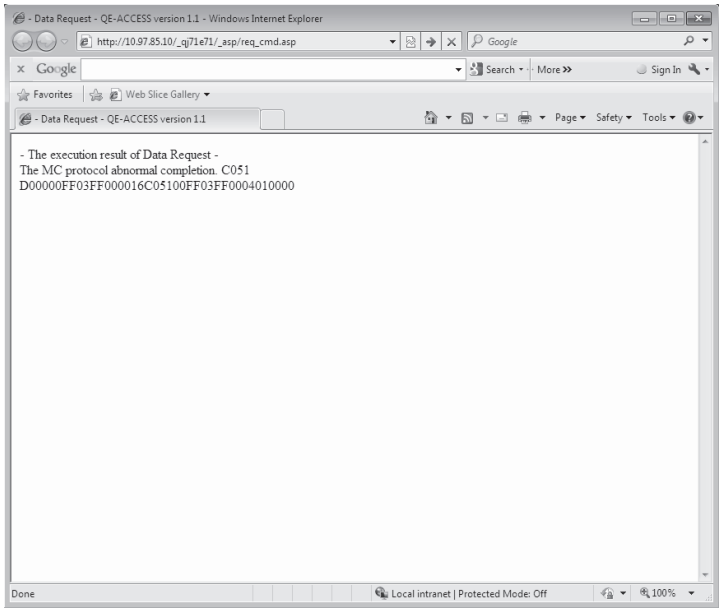
(2) Execution result

(a) Normal completion



(b) Abnormal completion



(3) Setting items

The following explains the setting items on the Data Request screen.

(a) Connection target (character string)

Specify the IP address or host name of the connection target Ethernet module.

(Example) To specify using the IP address, enter 10. 97. 85. 200.

(b) Command data (character string)

Specify the MC protocol application data using the same character string as the setting for ASCII code transmission.

For details on the MC protocol, refer to the Reference Manual.

(4) Precautions for use of Data Request

(a) Available communication frame

Application data of the QnA compatible 3E frame command can be specified.

Specification of the 4E or A compatible 1E frame is not allowed.

(b) No. of commands that can be specified at a time

Only one command can be specified at a time.

Continuous specification of more than one command is not allowed.

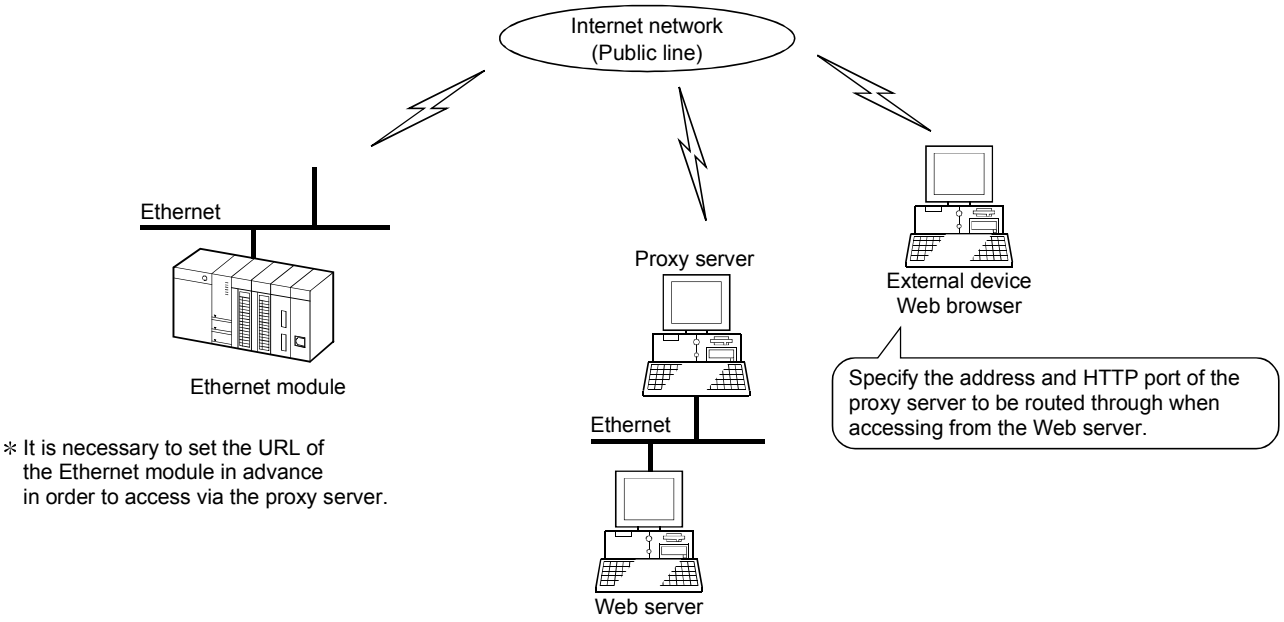
(c) Remote password unlock/lock (Command: 1630/1631)

Remote password unlock/lock (Command: 1630/1631) is not available.

The remote password to the HTTP port is unlocked in the dialog box, which is displayed in the Web browser when accessing to a CPU module. (Refer to Section 1(5).)

4.4.4 Proxy Setting

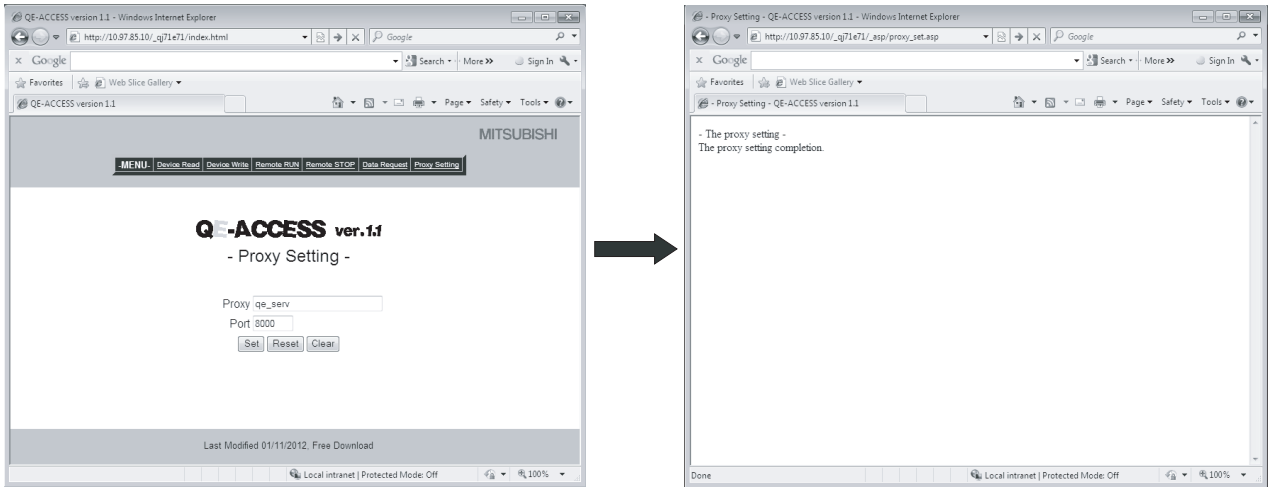
In case an Ethernet module is connected via a proxy server, specify the address and HTTP port of the proxy server to be routed through when accessing from the Web server to the Ethernet module.
It is necessary to set the URL of the Ethernet module in advance in order to access via the proxy server.



* It is necessary to set the URL of the Ethernet module in advance in order to access via the proxy server.

(1) Proxy setting

(Example) To set the port 8000 of the proxy server (qe_serv)



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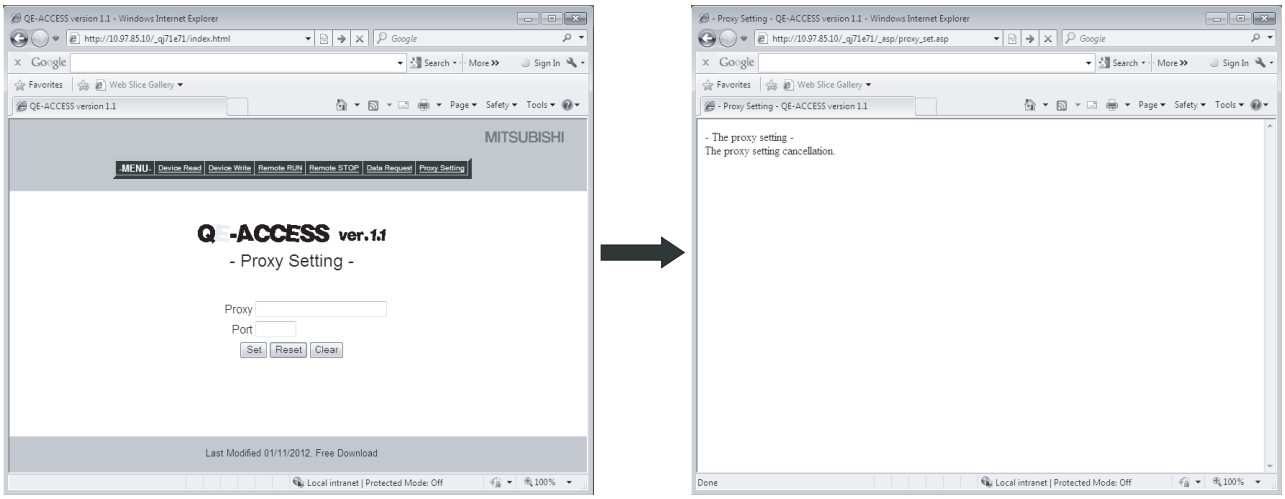
(2) Resetting proxy



(3) Setting items

The following explains the setting items on the Proxy Setting screen.
For the IP address and port of the proxy server to be used, consult with the network administrator (the person in charge of network planning and IP address management), and then specify them.

(a) Proxy (character string)

Specify the IP address or host name of the proxy server to be routed through.

(Example) To specify using the IP address, enter 10. 97. 85. 1

(b) Port (character string)

Specify the port to be used.

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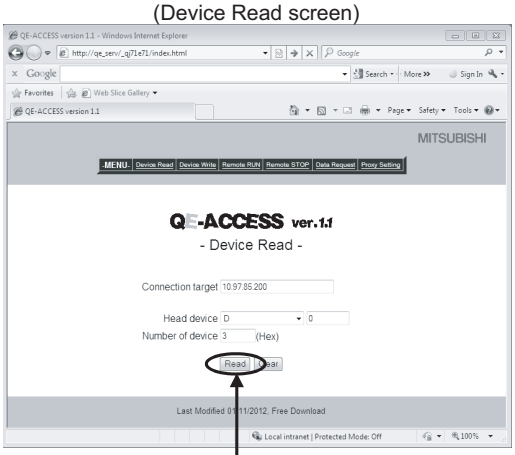
4.5 Configurations of Files on the Sample Screen

The following shows the configuration of the HTML files for Web browser and the configuration of the ASP files for accessing the programmable controller, using the Device Read sample screen.
For communication library functions, refer to Chapter 6.

(Device Read screen)



HTML file (dev_read.html)

```
<HTML>
<TITLE>
- Device Read - QE-ACCESS version 1.1
</TITLE>
<BODY BGCOLOR="#FFFFFF"><BR>
<CENTER>
<IMG SRC=_img/qeaccess_logo.gif><BR>
<TT><FONT SIZE=5 FACE="Arial,Lucida,Sans,Time Roman">- Device Read -</FONT></TT><BR>

<!Action>
<FORM ACTION="_asp/dev_read.asp" METHOD="POST" TARGET="_BLINK"><BR>
<TABLE BORDER="0">
<!Connection target>
<TR>
<TD WIDTH="140" ALIGN="RIGHT"><FONT FACE="Arial,Lucida,Sans,Time Roman">Connection target</FONT></TD>
<TD WIDTH="200" COLSPAN="2"><INPUT TYPE="TEXT" SIZE="26" NAME="iHostName"></TD>
</TR>
                    .
                    .
<!Input type>
<INPUT TYPE="SUBMIT" VALUE="Read">
<INPUT TYPE="RESET"  VALUE="Clear">
</CENTER>
</BODY>
</HTML>
```

(Specify the transmission destination)

(Execute an ASP file)

1)

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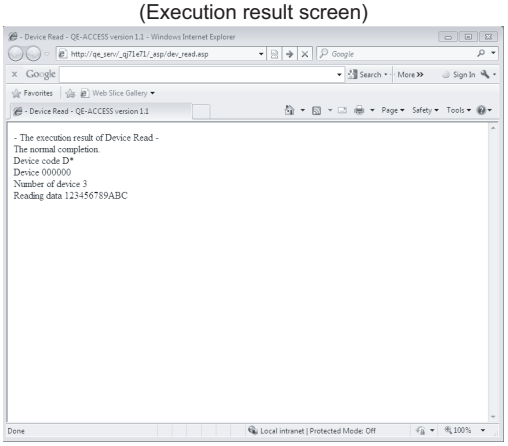
1)

ASP file (dev_read.asp)

```
<%@ LANGUAGE="VBScript" %>
<HTML>
<HEAD>
<TITLE>- Device Read - QE-ACCESS version 1.1</TITLE>
</HEAD>
<BODY>
<!Getting of input data>
<%
HostName = Request.Form("iHostName")
DevCode  = Request.Form("iDevCode")
DevNo    = Request.Form("iDevNo")
DevNum   = Request.Form("iDevNum")
PassWord = Request.Form("iPassWord")
PassInf  = Request.Form("iPassInf")
PassCnt  = Request.Form("iPassCnt")
%>
<!Setting of default value>
<%
NetNo   = "00"
PcNo    = "FF"
CpuTime = "0028"
RetType = "0"
%>
<!Calling of DLL>
<%
Set Object = Server.CreateObject("QeAccess.McProtcol")
disp = Object.DevRead( HostName, NetNo, PcNo, CpuTime, DevCode, DevNo, DevNum, PassWord, RetType )
%>
<!Showing of execution result(When the password error occurs, it makes input a password.)>
<%
If InStr( disp, "<!HTTP error 401>" ) <> 0 Then
        If PassCnt < 3 Then
                If PassInf <> "Cancel" Then
                        Response.Write("<CENTER>")
                        Response.Write("<FONT SIZE=4>Input remote password</FONT>")
                        Response.Write("<FORM ACTION=""dev_read.asp"" METHOD=""POST"" TARGET=""_BLINK"">")
                        Response.Write("<TABLE>")
                        Response.Write("<TD VALIGN=""middle"">PASSWORD:</TD><TD><INPUT TYPE=""PASSWORD""
                        SIZE=""20"" NAME=""iPassWord""></TD>")
                        Response.Write("</TABLE>")
                        Response.Write("<P>")
                        Response.Write("<TABLE>")
                        Response.Write("<TD>")
                        Response.Write("<INPUT TYPE=""SUBMIT"" NAME=""iPassInf"" VALUE=""  OK  "">")
                        Response.Write("</TD>")
                        Response.Write("<TD>")
                        Response.Write("<INPUT TYPE=""SUBMIT"" NAME=""iPassInf"" VALUE=""Cancel"">")
                        Response.Write("</TD>")
                        Response.Write("</TABLE>")
                        Response.Write("<INPUT TYPE=""hidden"" NAME=""iHostName"" VALUE=" & HostName& ">")
                        Response.Write("<INPUT TYPE=""hidden"" NAME=""iDevCode"" VALUE=" & DevCode & ">")
                        Response.Write("<INPUT TYPE=""hidden"" NAME=""iDevNo"" VALUE=" & DevNo & ">")
                        Response.Write("<INPUT TYPE=""hidden"" NAME=""iDevNum"" VALUE=" & DevNum & ">")
                        Response.Write("<INPUT TYPE=""hidden"" NAME=""iPassCnt"" VALUE=" & PassCnt+1 & ">")
                        Response.Write("</FORM>")
                        Response.Write("</CENTER>")
                Else
                        Response.Write(disp)
                End If
        Else
                Response.Write(disp)
        End If
Else
        Response.Write(disp)
End If
%>
</BODY>
</HTML>
```

(Execution result screen)



(Create an object (call the communication library))

(Execute device read)

Description relating to the remote password

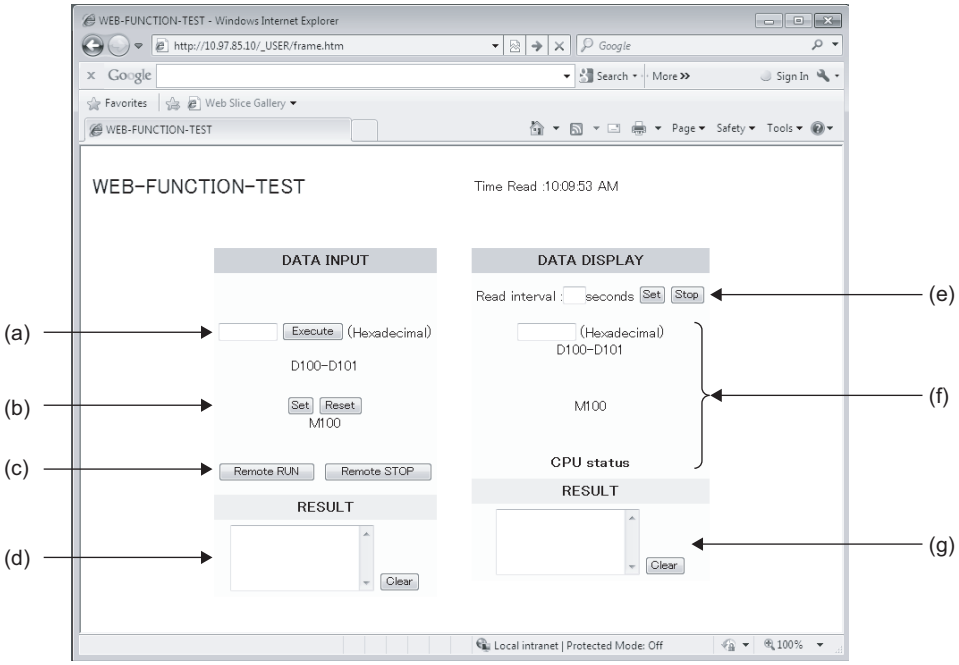
5 EXAMPLE OF CREATING A FILE FOR ACCESSING THE PROGRAMMABLE CONTROLLER

This chapter explains an example of creating a file for accessing the programmable controller.

* This file (sample-e.zip) can be obtained by contacting your local agency or marketing company.

(1) Configuration of a user-created screen

The following shows the screen configuration of a file used for accessing the programmable controller to be created in this chapter. (The function being used is enclosed with parentheses.)



(a) Device Write (DevWrite)
Writes data into D100 and D101.

(b) Device Write (DevWrite)
Turns ON/OFF M100.

(c) Remote RUN/STOP (RmtRun/RmtStop)
Performs remote RUN/STOP.

(d) Results
Displays the execution results of items (a) through (c) above.

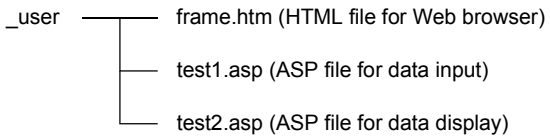
(e) Read interval
Sets the read interval time. Performs random read (Refer to item (f) below) processing for each set time interval after the read interval is set. Ends random read processing by STOP.

(f) Random read (ReqCmd)
Reads the following device memory.
- D100 and D101 (2 points), M100, SD203

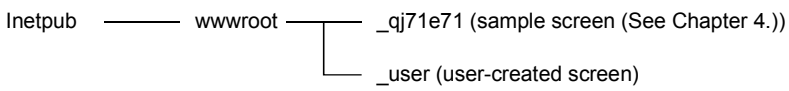
(g) Result
Displays the execution result of item (f) above.

(2) File configuration

(a) The following shows the file configuration of a file used for accessing the programmable controller.



(b) Copy the above files to the root directory "\Inetpub\wwwroot" of the Web server.



(c) Register the communication library (DLL file). (Refer to Section 3.2.)
If the communication library has already been registered, it is not necessary to register it.

(3) File content

Shows the content of the file to be created.
Enter the host name for "HostName" in the program.

(a) frame.htm

```
<HTML>
<HEAD>
<META HTTP-EQUIV="Content-Type" Content="text/html; charset=x-sjis">
<META NAME="GENERATOR" Content="Microsoft Visual Studio 6.0">
</HEAD>
<TITLE>WEB-FUNCTION-TEST</TITLE>
<FRAMESET COLS="50%,*" FRAMEBORDER=0>

<!Specify a read file>
<FRAME SRC="test1.asp">
<FRAME NAME="DATA" SRC="test2.asp">

</FRAMESET>
```

(b) test1.asp

```
<%@ Language=VBScript %>
<%
	Option Explicit

	Dim Password 'Password(not set)

	Dim disp	'Return value
	Dim Value	'Result

	Dim DevData	'Device data(use input value)

	Dim Answer	'For display
%>
<HTML>
<HEAD>
<META HTTP-EQUIV="Content-Type" Content="text/html; charset=x-sjis">
<META NAME="GENERATOR" Content="Microsoft Visual Studio 6.0">
</HEAD>
<%
	If Request.ServerVariables("REQUEST_METHOD")="POST" Then

		Dim Object	'Communication library
		Set Object=Server.CreateObject("QeAccess.McProtcol")

		Dim HostName	'Host name
		HostName="□.□.□.□"

		Dim NetNo	'Network number
		NetNo="00"

		Dim PcNo	'PC number
		PcNo="FF"

		Dim CpuTime	'CPU monitoring timer
		CpuTime="0040"

		'Click Set,Clear
		If Request.Form("SetData")<>"" Then

			'Call command data
			Dim DevCode	'Device code
			DevCode="M*"

			Dim DevNo	'Device number
			DevNo="000100"
```

```
Dim DevNum     'Number of device
DevNum="0001"

Dim SetData     'Set data
Select Case Request.Form("SetData")
Case "Set"
        SetData="0001"
Case "Reset"
        SetData="0000"
End Select

disp = Object.DevWrite( HostName, NetNo, PcNo, CpuTime, DevCode, DevNo,
DevNum, SetData, PassWord )

    Else

'Click remote RUN,remote STOP
If Request.Form("CpuNo")<>"" Then

        Dim CpuNo       'CPUNo
        CpuNo="03FF"

        Dim CmdMode  'Command mode
        CmdMode="0001"

        Select Case Request.Form("CpuNo")
        Case "Remote RUN"

                Dim ClrMode     'Clear mode
                ClrMode="02"

                disp=Object.RmtRun( HostName, NetNo, PcNo, CpuTime, CpuNo,
CmdMode, ClrMode, PassWord )
        Case "Remote STOP"

                disp=Object.RmtStop( HostName, NetNo, PcNo, CpuTime, CpuNo,
CmdMode, PassWord )

        End Select

Else

        'Dim DevCode   'Device code
        DevCode="D*"

        'Dim DevNo      'Device number
        DevNo="000100"
```

```
                                'Dim DevNum    'Number of device
                                DevNum="0002"

                                'Device data(use input value)
                                DevData=Trim(Request.Form("DevData"))
                                DevData=UCase(String(8-Len(DevData),"0") & DevData)

                                disp = Object.DevWrite( HostName, NetNo, PcNo, CpuTime, DevCode,
DevNo, DevNum, DevData, PassWord )
                            End If
                    End If
            End If
%>
<BODY>
<TABLE HEIGHT=80>
<TR><TD>
<FONT SIZE=+2>WEB-FUNCTION-TEST</FONT><P>
</TD></TR>
</TABLE>
<FORM METHOD=POST>
<TABLE BGCOLOR=LIGHTYELLOW ALIGN=RIGHT CELLPADDING=5 CELLSPACING=0 BORDER=0>
<TR BGCOLOR=CCCCFF><TH COLSPAN=2>DATA INPUT</TH></TR>
<TR><TD COLSPAN=2 HEIGHT=50><BR></TD></TR>
<TR>
<TD COLSPAN=2 ALIGN=CENTER HEIGHT=50>
<INPUT TYPE=TEXT NAME="DevData" SIZE=10 MAXLENGTH=8 VALUE=<%=DevData%>>
<INPUT TYPE=SUBMIT VALUE="Execute">
(Hexadecimal)
<BR>
D100-D101
</TD>
</TR>
<TR>
<TD ALIGN=CENTER COLSPAN=2 HEIGHT=80>
<INPUT TYPE=SUBMIT NAME="SetData" VALUE="Set">
<INPUT TYPE=SUBMIT NAME="SetData" VALUE="Reset"><BR>
M100
</TD>
</TR>
<TR>
<TH HEIGHT=50><INPUT TYPE=SUBMIT NAME="CpuNo" VALUE="Remote RUN"></TH>
<TH HEIGHT=50><INPUT TYPE=SUBMIT NAME="CpuNo" VALUE="Remote STOP"></TH>
</TR>
<TR><TH COLSPAN=2 BGCOLOR="CCFFCC">RESULT</TH></TR>
<TR><TH COLSPAN=2>
 <%
        Select Case Left(disp,5)
        Case "<!OK>"
```

```
                Answer="Normal completion"
        Case "<!NG>"

                Answer="Abnormal completion " & Mid(disp,Instr(disp,"error")+Len("error")+1,4)
        End Select
 %>
<TEXTAREA NAME="Answer" ROWS=5><%=Answer%></TEXTAREA>
<INPUT TYPE=BUTTON VALUE=Clear ONCLICK="this.form.elements['Answer'].value="">
</TH></TR>
</TABLE>
</FORM>
</BODY>
</HTML>
```

(C) test2.asp

```
<%@ Language=VBScript %>
<%
        Option Explicit

        Dim Time        'Time

        Dim Password    'Password(not set)

        Dim disp        'Return value
        Dim Value       'Result

        Dim Answer      'For display
%>
<HTML>
<HEAD>
<META HTTP-EQUIV="Content-Type" Content="text/html; charset=x-sjis">
<META NAME="GENERATOR" Content="Microsoft Visual Studio 6.0">
<%
        If Request.QueryString("stop")="" And Request.QueryString("time")<>"" Then

                'Time setting
                Time=Request.QueryString("time")
%>
<!--Refresh by time-->
<META HTTP-EQUIV="Refresh" CONTENT="<%=Time%>">
<%
        End If
%>
</HEAD>
<%

        'Execute if time is specified
        If Time<>"" Then
```

```
            Dim Object      'Communication library
            Set Object=Server.CreateObject("QeAccess.McProtcol")

            Dim HostName  'Host name
            HostName="□.□.□.□"

            Dim CmdData   'Command data

        CmdData="500000FF03FF000034004004060000020 1SD0002030001D*0001000002M*0001000001"

            Dim RetType     'Execution result type
            RetType = "1"

            disp=Object.ReqCmd( HostName, CmdData, PassWord, RetType )

            Select Case Left(disp,5)
            Case "<!OK>"
                Value=Mid(disp,Len("<!OK>")+1)
            End Select
        End If
%>
<BODY STYLE="RIGHT">

<TABLE HEIGHT=80>
<TR><TD>
Time Read :<%=FormatDateTime(Now(),3)%><P>
</TD></TR>
</TABLE>
<FORM>
<TABLE BGCOLOR=lightyellow CELLPADDING=5 CELLSPACING=0 BORDER=0>
<TR BGCOLOR=#ccccff><TH COLSPAN=2>DATA DISPLAY</TH></TR>
<TR>
<TD HEIGHT=50>
Read interval :<INPUT SIZE=2 MAXLENGTH=2 NAME=time VALUE="<%=Time%>"
ONCHANGE="check_number(this);">seconds
<INPUT TYPE=submit VALUE="Set">
<INPUT TYPE=submit NAME="stop" VALUE="Stop">
</TD>
</TR>
<TR>
<TD COLSPAN=2 ALIGN=middle HEIGHT=50>
<!Dara register read result>
<INPUT TYPE=TEXT SIZE=10 MAXLENGTH=8 VALUE=<%=Mid(Value,27,8)%>>
(Hexadecimal)
<BR>
D100-D101
</TD>
</TR>
<TR>
```

```
<TD ALIGN=middle COLSPAN=2 HEIGHT=80>
<FONT SIZE=+0><B>
<%
        Select Case Mid(Value,38,1)
        Case "0"
%>
OFF
<%

        Case "1"
%>
ON
<%
        End Select
%>
</B></FONT>
<BR>
M100
</TD>
</TR>
<TR>
<TH COLSPAN=2 HEIGHT=50 VALIGN=TOP>
<%
        Select Case Mid(Value,26,1)
        Case "0"
%>
RUN
<%

        Case "2"
%>
STOP
<%
        End Select
%>
<BR>CPU status
</TH>
</TR>
<TR><TH COLSPAN=2 BGCOLOR="#ccffcc">RESULT</TH></TR>
<TR><TH COLSPAN=2>
<%
        Select Case Left(disp,5)
        Case "<!OK>"

                Select Case Mid(Value,19,4)
                Case "0000"
                        Answer="Normal completion"
                Case Else
```

```
                    Answer="Abnormal completion " & Mid(Value,19,4)
                End Select
        Case "<!NG>"
                Answer="Abnormal completion" & Mid(disp,Instr(disp,"error")+Len("error")+1,4)
        End Select
%>
<TEXTAREA NAME="Answer" ROWS=5><%=Answer%></TEXTAREA>
<INPUT TYPE=BUTTON VALUE=Clear ONCLICK="this.form.elements['Answer'].value="">
</TH></TR>
</TABLE>
</FORM></P>
</BODY>
</HTML>
<SCRIPT LANGUAGE=javascript>
<!--
function check_number(element)
{
        var i;

        for(i=0;i<element.value.length;i++)
        {
                if ("0123456789".indexOf(element.value.charAt(i))==-1)
                {
                        alert(element.name+'Enter using a numeric value');
                        element.value='';

                        element.focus();

                        return false;
                }
        }

        return true;
}
//-->
</SCRIPT>
```

6 COMMUNICATION LIBRARY FUNCTIONS

This chapter explains the communication library functions.

(1) List of supported communication library functions

The following table lists the functions supported for the communication library.

Web function item	Function	Overview	Remarks
Device Read	DevRead	Reads from a bit device (such as X, Y, or M) in 16-point units. Reads from a word device (such as D, R, T, or C) in one-point units.	Corresponds to command 0401 (00□0) for QnA compatible 3E frame.
Device Write	DevWrite	Writes to a bit device (such as X, Y, or M) in 16-point units. Writes to a word device (such as D, R, T, or C) in one-point units.	Corresponds to command 1401 (00□0) for QnA compatible 3E frame.
Remote RUN	RmtRun	Requests a remote RUN operation to the CPU module.	Corresponds to command 1001 (0000) for QnA compatible 3E frame.
Remote STOP	RmtStop	Requests a remote STOP operation to the CPU module.	Corresponds to command 1002 (0000) for QnA compatible 3E frame.
Data Request	ReqCmd	Sends a user-specified command (an application data (subheader + text) of the MC protocol), and receives the result.	—
Proxy Setting	ProxySet	Specify the proxy server when connecting an Ethernet module via a proxy server.	—
Proxy Reset	ProxyReset	Resets the proxy setting.	—

(2) Communication library functions

The following table lists the communication library functions.

Web function item	Function		
Device Read	BSTR ＊p = DevRead (HostName, NetNo, PcNo, CpuTime, DevCode, DevNo, DevNum, PassWord, RetType)		
	Argument	HostName: Connection target	Input
		NetNo: Network No.	Input
		PcNo: PC No.	Input
		CpuTime: CPU monitoring timer	Input
		DevCode: Device code	Input
		DevNo: Head device	Input
		DevNum: Number of device	Input
		PassWord: Password	Input
		RetType: Execution result type (1: Actual data only; Other than 1: Normal execution result)	Input
		*p: Pointer to the execution result character string	Output

Web function item	Function		
Device Write	BSTR ＊p = DevWrite (HostName, NetNo, PcNo, CpuTime, DevCode, DevNo, DevNum, DevData, PassWord)		
	Argument	HostName: Connection target	Input
		NetNo: Network No.	Input
		PcNo: PC No.	Input
		CpuTime: CPU monitoring timer	Input
		DevCode: Device code	Input
		DevNo: Head device	Input
		DevNum: Number of device	Input
		DevData: Write data	Input
		PassWord: Password	Input
		*p: Pointer to the execution result character string	Output
Remote Run	BSTR ＊p = RmtRun (HostName, NetNo, PcNo, CpuTime, CpuNo, CmdMode, ClrMode, PassWord)		
	Argument	HostName: Connection target	Input
		NetNo: Network No.	Input
		PcNo: PC No.	Input
		CpuTime: CPU monitoring timer	Input
		CpuNo: Target programmable controller (Request destination module I/O No.)	Input
		CmdMode: Operation mode	Input
		ClrMode: Clear mode	Input
		PassWord: Password	Input
		*p: Pointer to the execution result character string	Output
Remote Stop	BSTR ＊p = RmtStop (HostName, NetNo, PcNo, CpuTime, CpuNo, CmdMode, PassWord)		
	Argument	HostName: Connection target	Input
		NetNo: Network No.	Input
		PcNo: PC No.	Input
		CpuTime: CPU monitoring timer	Input
		CpuNo: Target programmable controller (Request destination module I/O No.)	Input
		CmdMode: Operation mode	Input
		PassWord: Password	Input
		*p: Pointer to the execution result character string	Output
Data Request	BSTR ＊p = ReqCmd (HostName, CmdData, PassWord, RetType)		
	Argument	HostName: Connection target	Input
		CmdData: Application data part (subheader + text (command))	Input
		PassWord: Password	Input
		RetType: Execution result type (1: Actual data only; Other than 1: Normal execution result)	Input
		*p: Pointer to the execution result character string	Output
Proxy Setting	BSTR ＊p = ProxySet (ProxyName, PortNo)		
	Argument	ProxyName: Proxy server address	Input
		PortNo: HTTP port No.	Input
		*p: Pointer to the execution result character string	Output
Proxy Reset	BSTR ＊p = ProxyReset ( )		
	Argument	*p: Pointer to the execution result character string	Output

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(3) Arguments used by the functions

The following table lists the arguments used by the communication library functions.

All of the arguments of the communication library are specified using the same character string as used for the communication settings of the MC protocol in ASCII code.

Argument	Data type	Overview	Setting range	Reference section
ClrMode	Character string	Specifies the clear mode.	00, 01, and 02	Refer to the reference manual.
CmdData		Specifies the application data (subheader + text (command)) of the MC protocol (QnA compatible 3E frame).	Enter according to the MC protocol format.	
CmdMode		Specifies the remote operation mode.	0001, 0003	
CpuTime		Specifies the CPU monitoring timer.	0000 to FFFF	
CpuNo		Specifies the target CPU (request destination module I/O No.)	0000 to 01FF, 03E0 to 03E3, 03FF	
DevCode		Specifies the device code.	(Refer to item (a).)	
DevData		Specifies data for the number of device.	—	
DevNo		Specifies the head device number.	(Refer to item (a).)	
DevNum		Specifies the number of device.	1 to 960	
HostName		Specifies the IP address or host name of the connection target Ethernet module.	—	—
NetNo		Specifies the network No. to be routed thorough last.	00 to EF, and FE	Refer to the reference manual.
PassWord		Specifies the remote password.	—	—
PcNo		Specifies the PC No. of the access station.	01 to 40, 7D, 7E, and FF	Refer to the reference manual.
PortNo		Specifies the HTTP port No.	—	—
ProxyName		Specifies the IP address or host name of the proxy server.	—	—
RetType		Specifies the execution result type. 1: Actual data only Returns only the application data (subheader + text (response)) returned from the CPU module. Other than 1: Normal execution result Returns the data edited in the communication library.	—	—

(a) Device codes and head device numbers

The following table lists the device codes and head device numbers.
The devices that can be accessed using device memory read/write vary, depending on the target CPU module. For details, refer to the reference manual.

Device		Device type		Device code	Device No. range (at default assignment)	Notation	
		Bit	Word			Decimal	Hexadecimal
Special relay		○		SM	Specify the number within the device number range of the module to be accessed.	○	
Special register			○	SD		○	
Input relay		○		X*			○
Output relay		○		Y*			○
Internal relay		○		M*		○	
Latch relay		○		L*		○	
Annunciator		○		F*		○	
Edge relay		○		V*		○	
Link relay		○		B*			○
Data register			○	D*		○	
Link register			○	W*			○
Timer	Contact	○		TS		○	
	Coil	○		TC		○	
	Current value		○	TN		○	
Retentive timer	Contact	○		SS		○	
	Coil	○		SC		○	
	Current value		○	SN		○	
Counter	Contact	○		CS		○	
	Coil	○		CC		○	
	Current value		○	CN		○	
Special link relay		○		SB			○
Special link register			○	SW			○
Step relay		○		S*		○	
Direct input		○		DX			○
Direct output		○		DY			○
Index register			○	Z*		○	
File register			○	R*		○	
				ZR			○
Extended data register			○	D*	Binary code: Specify the number within the device number range of the module to be accessed. ASCII code: 000000 to 999999	○	
Extended data register			○	W*	Specify the number within the device number range of the module to be accessed.		○

(4) Return values of the functions

The following explains the return values of the communication library functions.

(a) A code for judging the execution result is added to the head of the return value.

For normal completion, <!OK> is added.

For abnormal completion, <!NG> is added.

* For ReqCmd, <!OK> is added in the case of an MC protocol error.

(b) A code for judging an error is added at abnormal completion.

1) In the case of an HTTP error, <!NG><!HTTP error "HTTP error code"> is added.

2) In the case of a WinSock error, <!NG><!WinSock error "WinSock error code"> is added.

3) In the case of an MC protocol error, <!NG><!MCP error "error code (end code)"> is added.

* Refer to either of the following manuals according to the error code, verify the error content, and take an appropriate action.

<Error codes>

4FFF$_H$ or lower : The user's manual of the CPU module used (Hardware Design, Maintenance and Inspection)

C000$_H$ and higher : The user's manual (Basic)

4) In the case of a communication library error, an error message is displayed.

(c) If the HTTP port is used or a remote password has been set in the CPU module of access destination, create a program for remote password input processing, using the error code for the following return value as a condition. (For an example of how to describe a program for remote password input processing, refer to Section 4.5.)

<!HTTP error 401>

(d) The following table lists examples of the return values of the communication library functions.

Function	Condition		Return value (example)
DevRead	Normal completion	RetType = other than "1"	<!OK>- The execution result of Device Read - The normal completion. Device code D* Device 000000 Number of device 4 Reading data 123456789ABC1234
		RetType = "1"	<!OK>123456789ABC1234
	Abnormal completion		<!NG><!MCP error C056>- The execution result of Device Read - The abnormal completion. C056
DevWrite	Normal completion		<!OK>- The execution result of Device Write - The normal completion.
	Abnormal completion		<!NG><!MCP error C056>- The execution result of Device Write - The abnormal completion. C056
RmtRun	Normal completion		<!OK>- The execution result of Remote RUN - The normal completion.
	Abnormal completion		<!NG><!MCP error 4B00>- The execution result of Remote RUN - The abnormal completion. 4B00
RmtStop	Normal completion		<!OK>- The execution result of Remote STOP - The normal completion.
	Abnormal completion		<!NG><!MCP error 4B00>- The execution result of Remote STOP - The abnormal completion. 4B00
ReqCmd	Normal completion	RetType = other than "1"	<!OK>- The execution result of Data Request - The MC protocol normal completion. D00000FF03FF0000140000123456789ABC1234
		RetType = "1"	<!OK>D00000FF03FF0000140000123456789ABC1234
	Abnormal completion	RetType = other than "1"	<!OK>- The execution result of Data Request - The MC protocol abnormal completion. C056 D00000FF03FF000016C05600FF03FF0004010000
		RetType = "1"	<!OK>D00000FF03FF000016C05600FF03FF0004010000
ProxySet	Normal completion		<!OK>- The proxy setting - The proxy setting completion.
	Abnormal completion		<!NG>- The communication library error - Check the setting value of the proxy.
ProxyReset	Normal completion		<!OK>- The proxy setting - The proxy setting cancellation.
	Abnormal completion		<!NG>- The communication library error - The proxy information is not set.

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WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.

However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place. Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.

(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.

1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.

(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

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SH (NA)-080180-F

MELSEC-Q/L Ethernet Interface Module User's Manual

Web function

MODEL	QJ71E71-U-WEB-E
MODEL CODE	13JR40
SH(NA)-080180-F(1302)MEE	

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS : 1-14 , YADA-MINAMI 5-CHOME , HIGASHI-KU, NAGOYA , JAPAN

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